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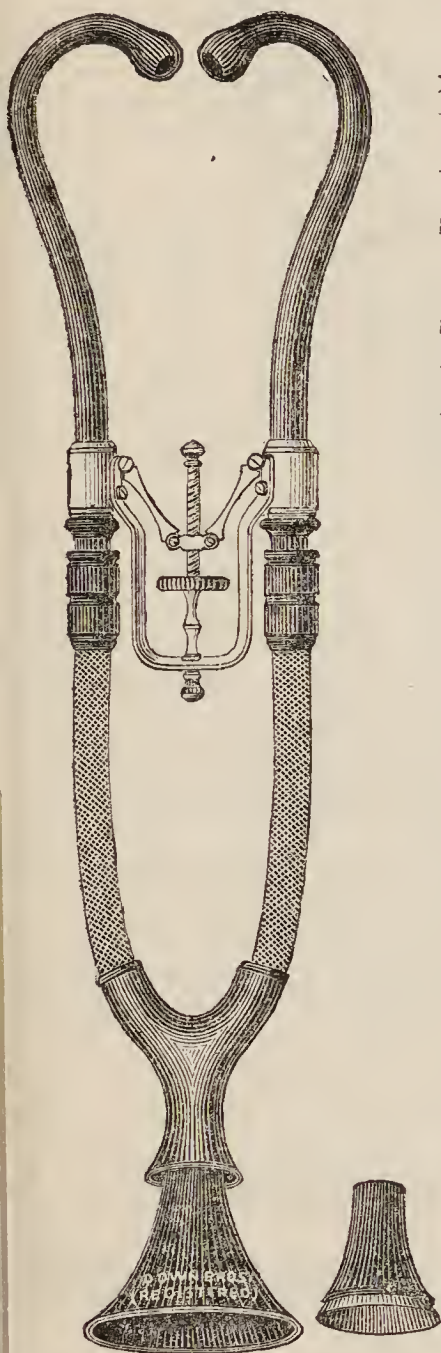
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ARRANGED ALPHABETICALLY.

GENERAL MEDICINE AND THERAPEUTICS.

ANALGESICS.—Relative Value of the Newer.

In the course of a lecture delivered in Cochin Hospital, Paris, Professor Dujardin-Beaumetz compared the new antithermic analgesics. The first rank is given to *antipyrin*, on account of its ready solubility, and the fact that it has little toxic power. He ridicules those who decry its use on the ground of its danger asserting that there are few substances in the *materia medica* that may not be given in toxic doses, and that these same persons who object to the use of the newer drugs have no hesitation in using morphine and belladonna, which are, in reality, far more dangerous. The chief disadvantage of *antipyrin* is the scarlatiniform eruption which is often produced by the ingestion of large doses, especially in the case of young girls.

Close after *antipyrin*, and second only because of its insolubility, the lecturer places *methylacetanilid*, or *exalgine*, to which he devotes a careful description. It is more active than *antipyrin*, and does not produce an eruption. In ordinary cases four grains, twice or three times daily, is a suitable dose, although, in rebellious cases, the quantity has been increased up to twenty grains a day. Owing to its insolubility in water the *exalgine* must be given in an alcoholic solution. The following is suggested by the author:—
℞. *Exalgine*, 2·50; essence of peppermint, 10; linden water, 120; syrup of orange flowers, 30. One teaspoonful (four grains) morning and night. The remedy seems to relieve pain arising from whatever cause. The speaker had observed relief in three cases of *cardialgia* with anginous accessions, and Gaudiman had reported but three failures in thirty-two cases of *neuralgia*.

Phenacetin, which is placed third on the list, being sparingly soluble, is proportionately non-toxic. It is best administered in capsules of seven and a half grains, once or twice daily, and is especially serviceable in the *neuralgias* of the hysterical.

Acetanilid should be placed last, according to this authority, not because it has less power, since that is not true, but on account of the alarming cyanosis which sometimes follows its use. This

discoloration, however, is stated to be not particularly harmful, the remedy being exhibited sometimes for months without producing more than a passing bluish discoloration of the skin and mucous membrane. (American Jour. of Med. Science, Feb., p. 173.)

ARISTOL.—A Substitute for Iodoform.

Dr. Eichhoff, of Eberfeld, writes quite enthusiastically of *aristol*, a compound of iodine and thymol, recently manufactured by Bayer & Co. (*Monatshefte f. prak. Derm.*, Jan. 15, 1890). Eichhoff believes that the new drug will supplant iodoform, not only in dermatological practice, but in other conditions where iodoform has heretofore been used, having the therapeutic properties of the latter drug without its disagreeable odour or toxic effects. The author has employed *aristol* only in diseases of the skin, including varicose ulcers, eczema, lupus, psoriasis, &c., and after reporting his cases in detail, concludes: 1. That *aristol* is in all cases a harmless drug. 2. That it is a powerful parasiticide. 3. That in the ulcerations of tertiary syphilis curative results are obtained more rapidly than with any other drug. 4. It is the most useful of all applications in the treatment of lupus. 5. In the treatment of psoriasis it does not act quite as rapidly as chrysarobin or pyrogallie acid. The *aristol* was in most cases applied as a ten per cent. ointment in vaseline. (Medical News, March 1, p. 205.)

CHLORAMIDE AS AN HYPNOTIC.

Chloramide is an addition-product from chloraldehyde and formamide. It is a white crystalline body, of somewhat bitter taste; it is decomposed in alkaline solutions, and is, therefore, best given in a slightly acid one. It may be given in wine, as it is readily soluble in alcoholic solutions. It dissolves in nine parts of water. The dose is thirty to forty-five grains, and in Germany this would cost about three cents. Chloramide seems to be best adapted to cases where there is not much pain; in cardiac affections, in neurasthenia, in diseases of the cord, and in phthisis it has proved serviceable. Out of twenty-eight cases it was efficacious in all but two or three. Compared with chloral, it is reported as being the stronger hypnotic; its taste is better and the accompanying symptoms are less. In one case collapse was observed, but it was not certain that it had been brought on by the drug. A slight pain and fulness of the head after waking seem to be the only after-effects. Thirty grains is a sufficient dose, especially for women; in severe cases, forty-five grains is a suitable amount, given in capsules or in wine. No unpleasant action on the circulation, respiration, temperature, digestion, or on the secretion of the urine, was observed. The experience thus far with chloramide warrants further trial, though, like many other remedies, the disadvantages of its use will be more apparent with a larger experience.

Dr. Reichmann (*Deutsche med. Woch.*) began the use of chlora-

mide by giving doses of fifteen grains, and obtained very varying results; with doses of thirty grains the action was better, and with forty-five grains still more satisfactory. When the drug was administered in the daytime and was not followed by sleep the patients complained of headache. In severe cases the patients felt tired and sleepy after waking in the morning. It does not seem to have a depressing action on the circulation. In short, this observer considers it a very serviceable hypnotic with few drawbacks.

Dr. Erich Peiper (*ibid*) has also found chloramide a useful hypnotic. Sleep is induced by it in from a half to one and a half hours, in doses of from thirty to forty-five grains. In many patients it causes headache, dizziness or lassitude on the day following its use. For insomnia, with diseases of the cord, asthma, subacute rheumatism, and diseases of the stomach, where there is no intense pain, it has been found serviceable and is to be preferred to chloralhydrate. (American Journal, Oct., p. 393.)

CHLORALAMIDE.—Dr. Langaard on.

Dr. Langaard of Berlin reviews in the *Therapeutische Monatsschrift* the present state of our knowledge of the action of chloralamide—one of the latest of the various hypnotics that have from time to time been recommended to the notice of the profession. According to most observers, the new drug is a less powerful hypnotic, weight for weight, than hydrate of chloral. Kny considers that 3 grms. of the amide is only equivalent to 2 grms. of the hydrate. The ordinary dose for healthy adults may be put down as from 30 to 45 grains. Women and delicate patients should be given decidedly smaller doses than strong men. According to Lettow's observations in Professor Mosler's clinic, the best way to give it is as an enema. Sleep comes on in from half an hour to three hours after the drug has been taken. Lettow found the time required to induce sleep was in twenty-nine cases one hour; in twenty-three cases two hours; and in three cases three hours; the duration of the sleep being four to six hours in seventeen cases, two to four hours in two cases, and two hours only in two cases. Chloralamide shows itself to the best advantage where the sleeplessness is of a purely nervous origin, but it is by no means useless in numberless cases where there is some definite affection—that is to say, if it be not accompanied by pain of too severe a character. It will, however, act when the insomnia is due to the lightning pains of locomotor ataxy, also when there is a moderate amount of cough, and in a number of mental affections which are not accompanied by any very considerable degree of excitement. It has proved serviceable in delirium tremens; and in one case of cardiac asthma—myocarditis due to arterio-sclerosis—Hagen and Hüfler believed that it produced a real amelioration of the disease. There is very little to be said as to any undesirable by-effects; as a rule these are very slight, and

are confined to a feeling of drowsiness and fatigue, with headache and giddiness of slight amount and short duration; but, notwithstanding the belief entertained by most writers on the subject that chloralamide is devoid of all action on the respiration and circulation, Dr. Langaard was able to demonstrate, by a number of careful experiments on animals, that it makes the respirations shallow and diminishes the arterial tension, though more slowly than chloral hydrate. He therefore cautions medical men to be very careful in prescribing it in cardiac affections. It is best ordered an hour or more before going to bed, and may be taken as a powder, washed down with milk, water, or coffee, or in solution with syrup, or it may be dissolved in wine or beer. (*Lancet*, Dec. 7, p. 1192.)

CYSTIC DISEASE OF THE BREAST.

At the Leeds and West Riding Medico-Chirurgical Society on Feb. 21, 1890, Dr. Trevelyan read a paper on this subject. He said cases might be arranged in two classes—1. Those in which there was no real tumour, the cyst constituting the whole of the disease, the intervening tissue being healthy; both breasts were affected and the disease was innocent. 2. Those in which there was a real tumour, the cysts developing in it; usually only one breast was involved, and the growth was mostly innocent, as, for instance, the cystic adenoma or fibroma, but it might be malignant, as the cystic sarcoma. With regard to the histology of the disease, attention was called to the three kinds of breast tissue—1, the gland which had not secreted at all; 2, the lactating gland; 3, the atrophying gland. In the healthy breast these three kinds of tissue were never found together, but in cystic disease they might all be present, from the undeveloped to the atrophied tissue, as Brissand had particularly pointed out. A very important structure in the cystic breast was the *membrana propria*, first described by Langhans, later by Mansell-Moullin, and lastly by Dr. Dreyfuss, of Strasburg. Langhans stated that the membrane was made up of three layers—a subepithelial layer of spindle cells, then a structureless layer, in which the spindle cells were partially embedded, like the veins of a leaf, and lastly an outer fibrous layer. A very important theory as to cyst formation had been based upon this *membrana propria*. In the formation of cysts the whole lobule, or part of the lobule, or even one single end vesicle might take part. Theories as to the origin of cysts and classifications had been numerous, from Sir Astley Cooper's time to the present, perhaps one of the most important was that of Labbé and Coyne, in 1876. The theory put forward by Langhans, and strongly supported by Dreyfuss, made cystic formation a direct result of changes in the *membrana propria*. The spindle cells were nothing else than unstriated muscle fibres, and the dilatation an active change instead of a mere passive one, as the advocates of the retention theory would have. (*Brit. Med. J.*, Mar. 8.)

DITHIOSALICYLATE OF SODIUM.

Dithiosalicylate is recommended by Dr. H. Linderborn as a substitute for the salicylate of sodium (*Revue Générale de Thérap.*) This body is formed by the combination of 2 atoms of sulphur and 2 molecules of the salicylate of sodium. It is a grayish-white powder, very hygroscopic, and very soluble in water. In the urine it does not form the violet reaction with perchloride of iron. In twenty per cent. solution it destroys various bacilli and microbes in forty-five minutes; in doses of 3 grains, repeated twice in twenty-four hours, it has succeeded in arresting articular rheumatism, even where salicylate of sodium had failed, and has been used by the writer with success in gonorrhœal arthritis without producing gastric trouble, ringing in the ears, or any tendency to collapse. (Therapeutic Gazette, Nov., p. 757.)

ENTERIC FEVER.—Desquamation in.

At the Clinical Society, on Jan. 10, 1890, Dr. Rolleston related a case of Enteric Fever which was attended by desquamation in large flakes in the commencement of the third week. The epidermis of the trunk and thighs came off in large flakes, while that of the hands and feet peeled in small bran-like scales. There was no history pointing to scarlet fever, and there was no evidence of any dermatitis or erythema, which might account for the desquamation of the skin. The interest of the case centred in the diagnosis of enteric fever, which seemed certain, though shaken by evidence which at first sight suggested scarlatina. (Lancet, Jan. 18, p. 133.)

GRAVES'S DISEASE.—Its Treatment by Strophanthus.

At the New York Medical Association, on June 17, 1889, Dr. Edward G. Janeway, in the course of a paper on the diagnosis and treatment of Graves's Disease, said he had employed the tincture of strophanthus in doses of five minims three times a day, gradually increased if necessary. Of eight cases in which he had used it, he had no information of the result in three; in two a cure had occurred; the only other remedy employed being iron. In one other, complicated with mitral insufficiency and considerable dilated hypertrophy of the left ventricle, there had been a cessation of the palpitation and a considerable improvement in the heart's condition. In the seventh case recovery had occurred, but galvanism was also used. The eighth patient had such irritable vomiting that it was impossible to give the remedy, or even to administer much food, by the mouth, and she succumbed to the exhaustion of the disease and vomiting in a neighbouring city, after she had passed from his immediate observation. On the whole, the results from strophanthus had been such that he could add his endorsement to that of others of its utility in this disease. It had succeeded in cases where digitalis had failed, and he preferred it to aconite as less dangerous, particularly in cases where the heart was somewhat

enfeebled. He had tried spartein in two cases, but in neither did it prove of much service. In one of these aconite, galvanism, and iron produced a marked improvement. Rest, both physical and mental, was a necessary adjuvant in the treatment; as well as the avoidance of worry and of emotional excitement. It was reasonable to suppose that the condition of the circulation in this disease tended to produce the restlessness, often associated with insomnia, met with in some cases, and in a certain proportion of these it would yield to the ordinary treatment mentioned. In one case he had used sulphonal with good results. Formerly, choice had to be made of the bromides, morphia, or, preferably, codeia, and chloral, or the use of the wet pack or bath. Iron was not invariably necessary, but was usually indicated by the coexisting anæmia. Attention should be paid to the condition of the nutrition, as evidenced by the appetite and general feeling, and by the weight of the body; and whenever this was at fault, appropriate measures should be employed to secure an improvement. In conclusion, he said that confidence on the part of the physician that he could produce an amelioration was of decided benefit. Moreover, it had seemed to him that hospital and dispensary patients were less amenable to treatment than those in the better walks of life. When fright or worry was a prominent factor in the production of the disease, it certainly did not add to the efficacy of the treatment to have a patient surrounded by the sick and dying. (*Medical News*, Aug. 10, p. 163.)

GRAVES'S DISEASE.—Carbazotate of Ammonia in.

This drug was used at one time principally by French physicians as a remedy against malarial disorders. But Wood states that the testimony so far seems to indicate that this drug has no value as a therapeutic agent. As a remedy for exophthalmic goitre we are indebted for its discovery to my clinical assistant, Dr. A. C. Combes. He discovered it accidentally in the following way: a patient afflicted with exophthalmic goitre consulted him nearly a year ago. She had been under the care of a well-known New York physician, who, not recognising the nature of her complaint, and thinking she was suffering from some febrile disease, gave her the carbazotate of ammonium. She was subsequently told the name of her disease, and, feeling dissatisfied with her physician, she left him and consulted Dr. Combes. Dr. Combes found that under the drug she was taking her symptoms were disappearing. He continued the remedy with excellent results, and has since used it on five cases, and in all of them with benefit. I have used it on three cases of my own, with, I think, decidedly good results. Its use is, however, limited, and for reasons which I will now mention can not be given indefinitely. Following the directions of Dr. Combes, I have given the remedy in pill form (each pill containing one grain of the drug) three times a day for the first week. In the second

week two pills three times a day are given, and, if it can be borne, three pills three times a day in the third week. The physiological effects of the drug are very decided. They were observed by Dr. Combes, and his observations have been verified by my own. At about the end of the first week the skin and conjunctivæ assume a slight saffron colour, which deepens if the drug is persisted in. Then a peculiarly unpleasant odour emanates from the body, which is identical with that produced by dirty feet, and can be distinctly noticed if you approach within six or eight feet of the patient. Following this, severe gastric disturbances show themselves. It is rarely possible that patients can take this remedy longer than three weeks, but while they take it the effects upon the heart, the respiratory tract, and the exophthalmia are undoubted. (Dr. G. M. Hammond, N. Y. Med. Journal, Jan. 25, p. 87.)

HYOSCINE.—Physiological and Therapeutic Actions of.

Merck's Bulletin contains a very valuable account of hyoscine, in which the physiological and therapeutic actions are summarised from the reports of numerous observers. Hyoscine is eliminated as such through the kidneys; it causes more or less dilatation of the pupil in most cases, and reduces salivary secretion and perspiration. The effects upon the pulse are still open to some doubt, while upon respiration, upon the spinal cord, and upon the electrical susceptibility of the motorial region of the brain it appears to have given negative results. It is regarded as a very powerful mydriatic; but on account of its liability to act on the organism generally it should be employed with caution. The mydriatic action is energetic and prompt, the dilatation being more rapid and greater with a $\frac{1}{4}$ to 1 per cent. solution of hyoscine than with a 1 per cent. solution of atropine; the duration of the mydriasis is, however, briefer. It is said to be eligible in chronic glaucoma, while acute glaucoma is considered a counter-indication. With regard to the method of administration, there appears to be some difference of opinion, although it seems not to matter whether the hydrochlorate, the hydrobromate, or the hydro-iodate is employed. Hypodermic injection is described by some as very painful, while internal administration acts less promptly, but is less dangerous, and the effect is very enduring. When given internally, $\frac{1}{32}$ grain may be employed, which when given in two tablespoonfuls of menstruum is absolutely insipid. Upon the hypnotic action there is singular unanimity, notwithstanding the difference in the susceptibility of various individuals; one observer, however, considers that the immediate and constant effect of hyoscine injection is not sleep, but a condition greatly resembling sleep, in which the patients are always found somnolent but yet awake. Of its sedative uses in the excitement of insanity there also appears to be no doubt, although it has given but little or no effect in melancholia. Erb has found it a most excellent palliative in the tremors of paralysis agitans,

and in this condition it also affords relief from the salivation and diaphoresis which are occasionally so troublesome. The tremors of multiple sclerosis and of chronic alcoholism were also benefited by it. These advantages have to be weighed against certain disadvantages. Many of Erb's patients complained of a feeling of general debility, drowsiness, flushed face, dry throat, slight vertigo, confusion, indistinct vision, and difficult speech. Hallucinations have also been noted. One observer, however, states that all these accessory effects of subcutaneous injection were reduced to utter insignificance by the internal administration of hyoscine. (*Lancet*, March 29, p. 718.)

INFLUENZA.—Treatment by Tannic Acid Cachets.

Alison (*Arch. Général*) considers influenza (grippe) an epidemic, infectious, and probably contagious disease, characterized by irregular fever, inflammation and catarrh of the mucous membranes, nervous disturbances, and finally, sweating and diarrhoea. He urges that the simple hygienic or symptomatic treatment be replaced by the administration of tannic acid in doses of twenty to thirty-five grains, in cachets, three times a day. In this way he treated twenty-three cases with recovery or relief. There occurs at once a diminution of the catarrh, the pain, and the nervous disturbances; sleep becomes quieter, and appetite returns. The perspirations and diarrhoea are influenced to a less degree. In all cases the remedy was well borne. (*American Journal*, Feb., p. 182.)

PSOROSPERMIÆ in the Human Subject.

At the Pathological Society, on Dec. 17, 1889, Mr. Silcock related a case of parasitism by psorosperms. The patient was a woman, aged 53, who was admitted into St. Mary's Hospital seven days before death. She was thought to be possibly suffering from typhoid fever. The illness dated from a "chill," taken six weeks before admission into hospital. The symptoms consisted of pains in the limbs, nausea, and occasional sickness, tenderness over the liver and spleen, fever of remittent type, the temperature reaching 103° F., and slight diarrhoea. The urine was albuminous. The areas of splenic and liver dulness were increased. The tongue was coated with brown fur, which became dry. The breath was foul. Death resulted from cardiac failure. The post-mortem examination was made eighteen hours after death in the middle of July. The liver was much enlarged, and weighed 83 ounces; in its substance were a number of aggregations of caseous foci, for the most part near the surface, there being generally a well marked red ring of congestion or capillary hemorrhage round each caseous area. The spleen was enlarged, and weighed 16 ounces, and exhibited sundry caseous foci varying in size from a pin's head to that of a pea. They were aggregated together with a red inflammatory zone around each nodule. In the ileum were found six papule-like elevations, with

red bases and a circumferential inflammatory zone. Also in the large intestine, as well as in the ileum, there were red patches of injected mucous membrane, from one to three inches square. There was a small pneumonic area in the anterior border of the left lung. The other organs and tissues presented no interesting changes, except those associated with fever. The naked-eye post-mortem appearances to a certain extent resembled those of tuberculosis, but differed in the character, situation, and limited generalisation of the lesions. On examination of the caseous nodules, coccidia were found, which corresponded in every respect with those described by Leuchart. The psorosperms did not appear to develop within the body—a fact noticed by that author—but they were obtained by keeping the coccidia at an equable temperature, in a warm room or incubator. It was a very remarkable fact that the development of the psorosperms went on in a weak solution of bichromate of potash, such as was used for hardening purposes. The resistance and toughness of the coccidium capsule probably explained this occurrence, as also the difficulty in getting the organisms to stain with any of the reagents in ordinary use. The histological characters of the hepatic and splenic lesions were admirably given by Leuchart, and to his descriptions there was at present nothing to add. That the coccidia were present in the bile duct, and that this topographical distribution was regulated by the latter, was also obvious from an inspection of the specimens, but it was noteworthy that the only intestinal lesions found were far away from the duodenum. Their presence in the spleen could only be accounted for on the supposition that they had been carried there in the blood stream. This was the first case of the kind which, so far as he knew, had come under his notice; but from the marked *primâ facie* resemblances of the disease to tuberculosis, he could not doubt that it was much more common than was generally imagined. (British Medical Journal, Dec. 21, p. 1392.)

SALICYLIC ACID.—Natural and Artificial.

Professor Charteris and Mr. Maclellan append the following statement to an account of an experimental research, as to the comparative action of natural and artificial salicylic acid. "The obvious conclusions from these experiments are that artificial salicylic acid contains an impurity or impurities, and until this or these can be extracted by the aid of chemistry the internal administration of it or its salt of sodium should be discountenanced. Large and repeated doses of the sodium salt are necessary in the treatment of acute rheumatism, and hence we may account for the restlessness, the confusion, and the delirium sometimes attendant on its use, which have been testified by clinical experience. It is more than probable, too, that the retarded convalescence occurring in some cases of acute rheumatism after the salicylate treatment is due to the great and protracted prostration which the impurity or impurities give rise to.

It is to be remembered in connection with these symptoms that prescriptions of the salicylate of sodium are invariably made up, unless otherwise indicated, from the artificial and not the natural salt." (British Medical Journal, Nov. 30, p. 1209.)

SALICYLIC ACID.—Its Effect upon the Uterus.

Dr. Linhart (*Wiener med. Presse*) has recently had an opportunity of studying the action of the salicylate of sodium on the uterus. The patient was a young married woman, suffering with chronic rheumatic arthritis. Salicylic acid always relieved the rheumatic symptoms, but in a short time after its administration a new series of symptoms presented, viz., pain in the back and loins, constant whether sitting, lying, or standing. Then it was noticed that the menses, which ordinarily lasted from three to four days, now continued seven to eight days, were unusually copious, and more painful. It was also observed that when the administration of the drug was begun near the time for menstruation, the latter was sure to appear after a few doses had been taken. While this drug was being administered, other remedies, such as chloral, morphia, chloroform, &c., were given to meet the symptoms just described, but with unsatisfactory results. For some time French observers have advocated the idea that salicylate of sodium has a paralyzing action upon the vaso-motor nervous system, thereby causing a dilatation of the arterioles. On this theory Dr. Linhart could explain all the symptoms in his case, and, by way of experiment, he gave minute doses of ergot with the happiest results. The writer is, therefore, led to conclude that the drug is destined to play a more important rôle in the treatment of certain diseases of women than heretofore, and suggests its use in amenorrhœa and kindred complaints. (American Journal, Feb., p. 177.)

STERILIZATION OF FÆCES.

The best disinfectants to use are the bichloride with hydrochloric acid, the bichloride with potassium permanganate, and the chloride of lime. Five per cent. solutions of carbolic acid and two-tenths per cent. solutions of the bichloride are unreliable even when used in the proportion of one pint to every 100 c.c. of dejection. Emphasis needs to be laid on the necessity of thorough disintegration of the fæcal matter by stirring with the disinfectant, and on the necessity of allowing the mixture to stand four hours at least before emptying. For continued use the bichloride solutions would injure lead pipe, while if used for a few days only, probably no injury would result. For long-continued use, where the dejections are thrown into a water-closet, chloride of lime is undoubtedly the most available disinfectant. Solutions of chloride of lime should be kept tightly corked, and should not be used after they are one week old. (Dr. C. J. Foote, of New Haven, U.S.A., American Journal, Oct., p. 340.)

TYPHOID FEVER.—With an Analysis of 129 Cases.

Dr. F. C. Shattuck (*Boston Med. and Surg. Journal*) analyses the results of his experience with typhoid fever in the Massachusetts General Hospital during the last three years. He excludes all abortive or otherwise doubtful cases, but includes those patients who entered the hospital in a desperate condition and died within a few days. In this connection he remarks on the occurrence of abortive typhoid fever, questioning how anyone of experience can doubt its existence, and quoting from the literature of the subject to show that typhoid fever can certainly be present even without the slightest elevation of temperature. Of the 129 cases, 11 died, a mortality of 8.8 per cent. In none of these was unusually or continuously high temperature a feature. A table is given showing the state of the bowels, the occurrence of epistaxis, and the existence of splenic enlargement. This table shows that in 51 per cent. there was no diarrhoea, and in 36 per cent. the bowels moved only after enemata. In only 25 per cent. was looseness of the bowels really a prominent feature, a smaller percentage than the text-books would usually indicate. Epistaxis was present in 38 per cent. The author is inclined to consider splenic enlargement less common than usually supposed. He gives a table of the frequency and character of the complications and sequelæ, and calls attention to the fact that there was no instance of perforation among his cases. In discussing relapse, the author follows the English writers in defining it as a renewal of the typhoid process, irrespective of the time of its onset; as opposed to the Germans, who claim that to constitute a relapse there must have been an interval of apyrexia of varying length. 21 (16.28 per cent.) of his cases suffered relapse, but as one of them relapsed twice, there are 22 secondary attacks for study. In 11 of these the relapse was intercurrent, i.e., occurred before complete defervescence, before the first normal evening temperature; and in 11 others it was consecutive, i.e., developing after defervescence. This fact proves, he thinks, that we are powerless to prevent a relapse, and that errors in diet have nothing to do with it. In the great majority of his cases the second attack started without any change in the liquid diet. Various causes may occasion a return or an exacerbation of the fever, but to produce a relapse there must be a re-infection or auto-infection. In the 11 intercurrent cases the relapse took place in from the third to the fifth week. In the 11 consecutive cases it appeared after an interval of from one to nine days. 21 of the cases recovered, the average duration of the second attack having been nineteen days, but with an individual range of from eleven to twenty-nine days. The author has excluded from this list those which might be classified as instances of aborted relapse, on account of the difficulty in distinguishing between such very short attacks and some obscure complication. His experience does not bear out the German view that intercurrent

attacks are more dangerous than consecutive ones. In 18 of his 22 cases the fever reached its height on the fourth to the sixth day, and more often on the fifth than on any other day. The sudden fall of the temperature on the eighth to the ninth day, mentioned by Irvine as characteristic of relapse in typhoid fever, the author has not been able to corroborate throughout. In only 6 of his cases did this drop occur on either of these days. In some it was noticed on the sixth, in more on the tenth or the eleventh, and in others the fever terminated by an uninterrupted but gradual lysis. The treatment was essentially expectant. In 29 per cent. no drug of any kind nor any alcoholic stimulant was given at any time. Digitalis and cocaine were the cardiac stimulants employed when such medicines were indicated. The author was especially pleased with the apparently prompt and marked action of the latter in some cases. Calomel and naphthalin were administered in a few cases to see whether intestinal antiseptics could be procured, but the results were not encouraging. The author used the internal antipyretics a good deal in 1886, but very little in the two succeeding years, and only then when the fever itself appeared to interfere with the comfort of the patient. The knowledge which we now possess renders it probable that it is not the high temperature which is the great cause of death in typhoid fever, but the influence on the nervous system of the alkaloidal poisons produced in the living body. The author quotes the experience of several observers in support of this statement. He is being gradually forced to the conclusion that the method of Brand for the treatment of typhoid fever is the best, and that we must come to it in this country. The statistics which Brand gives, and which Shattuck quotes, show how very much less the mortality is in patients treated by this method. (*American Journal*, Nov., p. 512.)

TYPHOID FEVER.—Treatment by Cold Baths.

Josias (*L'Union Médicale*) reports thirty-six cases of typhoid fever treated with cold baths, administered systematically every three hours, if the temperature reached 102.2° F. But one death occurred, and this was a patient *in extremis* when the treatment was instituted. Twenty-seven of the cases were benign but hyperpyretic, and the remainder grave. Neither intestinal hemorrhage, the presence of menstruation, nor the evidences of pneumonia or of renal affection, were allowed to interfere with the treatment. One of the advantages is the excessive diuresis produced; perhaps a consequence of the great thirst, which allows of the administration of large amounts of liquid nourishment (four to five quarts daily). As a result of this hyperalimentation the duration of the malady is less, and the forces are better preserved. The author believes that the method occasions abundant diarrhoea, which he considers an advantage, on account of its cleansing effect on the intestine. (*American Journal of Medical Science*, Jan., p. 73.)

TYPHOID FEVER.—Bath Treatment.

The system of cold baths in the treatment of typhoid fever as employed in Germany has been put to the test by Dr. Josias, and he reported to the Société Médicale des Hôpitaux that during the years 1888 and 1889 he treated thirty-six cases of typhoid fever by cold baths—that is to say, with water at 18° C., repeating these every three hours. Of thirty-six cases the experimenter obtained thirty-five recoveries. Drs. Renoy and Richard, who, on their side, had followed this method, obtained 103 recoveries out of 108 cases. Dr. Merklen, on the other hand, in a report on the mortality caused by typhoid fever in the hospitals of Paris, showed that this mortality fluctuated between 14 and 15 per cent. In another report by Dr. Sorel, the author stated that out of 105 cases of typhoid fever he obtained 100 recoveries, and five cases proved fatal. The treatment consisted in prescribing the sulphate of quinine associated with the salicylate of soda. Some of the patients had taken baths, but rather warm than cold. Dr. Sorel does not believe that in present circumstances the superiority of cold baths is sufficiently well established to make it a method of treatment obligatory in the French army, as it is in the German army. A French critic, writing on the cold-water system of the treatment of typhoid fever in Germany, gives the following statistics, drawn up by Dr. Longuet, relative to the German army, which may be found interesting here. In 1865, out of 2,500 typhoid patients, there were from 500 to 700 deaths. From 1882 to 1884 the number of patients was nearly identical; but, thanks to the application of the cold baths, the deaths among the soldiers amounted on the one hand to 221, and to 183 on the other. Since then the diminution of the mortality was slow, constant, and mathematical, according as the cold-water system extended. From 24 per cent. in 1865, the mortality fell to 11 per cent. in 1876. In 1883 it was not more than 9 per cent. These figures were thought by the writer to be conclusive on the subject, and he asked why the French were obstinate and remained behind in this matter. (*Lancet*, March 8, p. 575.)

TYPHOID FEVER.—Naphthaline as an Antiseptic in.

Dr. Chas. R. C. Tichborne, of Dublin, in a note on Naphthaline as an Internal Antiseptic in Typhoid Fever, says: I think it is scarcely realised that naphthaline is one of the most perfect antiseptics and germicides we possess. One crystal, when placed in 3 or 4 ounces of urine, will stay the conversion of urea into ammonium carbonate for days, and even weeks, and this in spite of the fact that it is not more soluble in water than camphor. The great insolubility of naphthaline in almost all available solvents has been the great detriment to its more general use, but in the case of typhoid this insolubility should be rather a recommendation, as it would pass undigested through the bowels. At the same time it would be desirable to use a finely precipitated

naphthaline, and not the rather hard and sharp crystals which constitute the ordinary drug. Such a precipitate is easily procured by dissolving it in glacial acetic acid, or strong alcohol (it being very soluble in either) and pouring the solution into cold water which is kept stirred. The resulting precipitate is well washed and dried at a gentle heat. Experience will only determine the dose, but I would hazard the suggestion that small doses frequently given would be the mode in which its full antiseptic effect would be brought into play. I have taken 2 grain doses every hour, the only observable results being deodorising of all fæcal matter. It has a rather pronounced odour of tar and violets, but, strange to say, hardly any taste. If it is necessary to give it in the liquid form it would be best given dissolved in some fixed oil, which can be then emulsified and flavoured to disguise the odour, e.g., R. Naphthalinæ, grs. xvj; ol. amygdal. dulc., ℥iv; Solve. et adde Pulv. gum acaciæ, ℥j; syr. aurantii, ℥j; aquæ, ℥iij; Ft. emulsio, S.A. (Medical Press and Circular, Dec. 11, p. 603.)

VACCINATION SYPHILIS.—Differential Diagnosis.

The *Deutsche med. Zeitung* of July 18th, 1889, reproduces a summary of Professor Fournier's clinical lectures on this subject by Dr P. Portalier. The lines of distinction between syphilitic and other appearances are drawn with equal clearness and elegance by the French syphilologist. I.—Differential diagnosis between vaccinal ulcers and primary chancre: The latter never develops before the fifteenth day after vaccination, the time required being mostly three weeks; twenty days after inoculation it is still in its earliest development. A "vaccination ulcer" is present, if ever, twelve or fifteen days after vaccination; after twenty days it is fully developed. The clinical differences are as follows: In the case of vaccination ulcer, (1) all the pustules are affected as a rule; (2) much inflammation and ulceration; (3) deeply excavated ulcer; (4) much suppuration; (5) irregular margin as in soft chancre; (6) floor of ulcer uneven, suppurating; (7) inflammatory induration; (8) inflammatory, erysipelatous areola; (9) gland swelling none, or else inflammatory; (10) complications often present, sloughing; erysipelas, &c. Syphilitic ulcer: (1) Is restricted to one or a few pustules; often these do not develop; (2) the inflammation is slight; (3) the loss of substance is superficial; (4) suppuration is scanty or absent; crusts form; (5) border not notched, slightly elevated, gradually lost in floor; (6) surface of floor smooth; (7) the "parchment" induration is specific, not merely inflammatory; (8) hardly any inflammatory areola; (9) gland swelling constant, indolent; (10) complications rare. II.—Differential diagnosis between vaccination rashes and secondary syphilitic eruptions: Under the former are comprised roseola vaccinalis, miliaria vacc., vaccina bullosa, and hemorrhagica, also accidental rashes, rubeola, scarlatina, lichen, urticaria, &c. A true vaccinal

rash (1) appears between the ninth and fifteenth day after vaccination; (2) absence of inoculation chancre; (3) eruption has not syphilitic characters; (4) is attended with fever; (5) is evanescent. A secondary syphilitic eruption (1) appears, at the earliest, nine or ten weeks after vaccination; (2) requires the pre-existence in every case of a specific ulcer at the site of vaccination, that is, to constitute the rash due to vaccination; (3) shows the characters of true specific eruptions; (4) is not attended with fever; (5) lasts a long time; (6) is accompanied as a rule with specific appearances on the mucous membranes. III.—Differential diagnosis of vaccination-syphilis from hereditary syphilis, which may show itself about the time of vaccination: Vaccination syphilis (1) begins with a local affection, chancre, and indolent bubo; (2) has a typical development in four stages, namely, incubation, chancre, second incubation, generalisation (secondary rashes, &c.); (3) never appears earlier than the ninth or tenth week after vaccination. Hereditary syphilis (1) has no chancre, but begins with general phenomena; (2) has no typical development after vaccination; (3) is wholly independent of the latter as to time; (4) is attended by the habitus syphiliticus, or syphilitic bodily aspect; (5) other manifestations of hereditary lues may be present; (6) the history may indicate syphilis. The only point in the above admirable summary requiring correction is the statement that a secondary syphilitic rash is not attended by fever. (*British Medical Journal*, Nov. 16, p. 1115.)

AFFECTIONS OF THE NERVOUS SYSTEM.

CEREBRAL ABSCESS AND EAR DISEASE.—Treatment.

The following conclusions are based upon the examination of a series of 18 fatal cases of Cerebral Abscess following Disease of the Middle Ear: 1. Abscesses in the temporo-sphenoidal lobe, which is by far the most common situation, are often associated with an inflamed or sloughing dura mater over the anterior surface of the petrous bone, or with a collection of pus beneath it. 2. Other complications are infrequent, except meningitis, which is generally due to the extension or to the rupture of the abscess. 3. These abscesses are almost always situated very close to the roof of the tympanum. 4. A foul discharge is often a source of danger, and frequently, if not invariably, the spread of the mischief is due to imperfect drainage of the middle ear. 5. Mastoid suppuration often infects the posterior surface of the petrous bone, but it may be associated with disease limited to the middle fossa of the skull. 6. Cerebral abscesses only occur when the otorrhœa has lasted for months or years. 7. The symptoms usually come on insidiously. 8. Rigors, pyrexia, and optic neuritis are all infrequent in uncomplicated cases, but they all occur occasionally. 9. A headache of intense severity, and a dull, sluggish mental state are the two

most characteristic symptoms. 10. Cerebellar abscesses are less common, and will probably be associated with disease of the dura mater behind the petrous bone, or with thrombosis of the sinus.

The objects to be aimed at in *treatment* are: *a.* In every case to improve the drainage of the ear, by gouging away or trephining the mastoid sufficiently to open up the horizontal cells or antrum, where pus is often found, and to break a hole through the deeper part of the posterior wall of the external meatus, so as to allow no secretion to be retained. The cavity should be rendered sweet and aseptic as soon as possible. In a case of otitis media it is often desirable to carry out this treatment as soon as there is evidence of a fresh accession of severe mischief; should further exploration be necessary later on, the risk of infection from the septic otorrhœa will be very much reduced. It is always desirable that the external ear should be dressed apart from the other openings, if any are made. *b.* To expose the anterior surface of the petrous bone, so as to allow free drainage for any pus or *débris* which may have formed in connection with the dura mater, which is often inflamed or gangrenous. This is best reached at a point half an inch above the anterior margin of the external meatus. Should there be any pus retained, some will often be found in the diploë of the bone removed, in which case the bone should be broken away to a quarter of an inch above, and just in front of, the meatus, so as to expose the most dependent part of the anterior surface. *c.* To drain the abscess from below when possible. Messrs. Horsley, Macewen, Barker, Bergmann, and others, have discussed the best methods of attaining this result. In the case of a temporo-sphenoidal abscess, the area beneath which the pus will almost universally be found may be said to be bounded anteriorly and posteriorly by curved lines drawn through the temporo-maxillary joint and the middle of the mastoid, running at right angles to the sagittal suture, and to extend from half an inch to 2 inches above the meatus. The lower part of this area should, therefore, be explored with trocar and cannula, after breaking the bone away or trephining a fresh hole, and opening the dura mater, unless special symptoms indicate that the abscess is higher up. If the attempt to find pus is unsuccessful, the lateral sinus should be exposed and examined half an inch directly behind the meatus; if necessary the bone may be further broken away, and the outer and under part of the cerebellum explored for abscess. By this method all the seats where pus is likely to accumulate can be systematically examined, and we give the patient the best chance. It is necessary to examine all these seats in doubtful cases, because, although in some uncomplicated cases we may be able to determine the lesion fairly definitely, yet, where two or more lesions are combined, the uncertainty in the diagnosis is so great that the best method is to explore all probable spots. (Dr. Newton Pitt's Goulstonian Lecture, Brit. Med. Jour., March 22.)

CEREBRAL HEMORRHAGE AND CEREBRAL THROMBOSIS.

Cases of apoplexy often admit of very little being done in the early stages in the way of direct treatment, because of the great difficulty in diagnosing between cerebral hemorrhage and incipient softening due to thrombosis. Some people are apt to think—and the less experienced they were the more they were apt to think—that hemorrhage and incipient softening are diagnosed very readily—that there is not, in fact, much difficulty in distinguishing the one from the other. That was not the opinion of Trousseau, who long ago said he considered it one of the most difficult problems in medicine, and the experience of Dr. Bastian taught him that that was absolutely true. He knew nothing more difficult in many cases than the diagnosis between these two conditions. He had seen a patient seized with apoplexy of the most profound type, who died in the course of four hours, with symptoms such as usually occur with very large hemorrhages into the ventricles or into the pons Varolii, but after death nothing existed but a complete thrombosis of the basilar artery. The lecturer cited another case, of lesser severity, in which a man presented all the indications of cerebral hemorrhage—apoplexy, of sudden onset, and complete paralysis, coexisting with chronic renal disease and hypertrophy of the left ventricle. Yet at the necropsy a thrombus was found occluding the middle cerebral artery. These cases showed the difficulty of diagnosis in the apoplectic condition, especially where the details and the exact mode of onset were not known. (Dr. Charlton Bastian, *Lancet*, March 8, p. 529.)

CEREBRAL TUMOUR.—Sudden Death in.

Dr. Hughlings Jackson, in his Presidential Address to the Ophthalmological Society, says: It is very remarkable that many patients with optic neuritis die suddenly or rapidly, and when seemingly in fair general health, sometimes at work, certainly most unexpectedly. I have often urged this on the attention of physicians. In some cases of cerebral tumour the patient may be acutely ill; he may have an illness very like tubercular meningitis in many of its symptoms; there may be slow and unrhythmical pulse and irregular respiration, there are retracted abdomen, constipation, and vomiting. I suppose that when a patient who has post-neuritic atrophy tells us that his sight failed after “bilious” or “gastric” fever, he has had such an acute illness. Dealing with certain cases of optic neuritis in children, Hutchinson wrote: “Nearly always there is a history of a severe illness, which was supposed to be fever, and was marked by delirium and other head symptoms. (*Lancet*, Oct. 26, p. 838.)

CHOREA.—Its Treatment by Choralamide.

In addition to its value as a hypnotic, which now seems to be tolerably well established, chloralamide is claimed to be an almost

invaluable specific in the treatment of chorea, though, it must be admitted, that this claim is based upon as yet insufficient premises. Nevertheless, the cases reported by Dr. Alt (*Wiener Medizinische Blätter*) certainly are very striking. The first of these was that of a boy, 11 years of age, who, after five days' treatment with 15 grains of chloralamide, administered three times daily, was almost absolutely cured of a severe case of chorea. This was also the case with a girl who had been unsuccessfully treated for fourteen weeks with arsenic. She was cured, likewise, after eight days' use of chloralamide. Dr. Alt, also, confirms the almost unanimous testimony as to the value of chloralamide as a hypnotic, especially in cases of simple insomnia, where sleep is produced without any influence upon the circulation, respiration, or digestion, and with but insignificant after-effects. (*Therapeutic Gazette*, Nov., p. 745.)

DIABETIC COMA.—Intra-venous Injection in.

At the Clinical Society of London, on Feb. 28th, 1890, Dr. Dickinson gave the details of a case of diabetic coma in which injection of saline fluid into the veins was practised. The patient was a woman aged twenty-five, who was the subject of diabetes in a severe form, upon which coma with the usual diabetic character had recently succeeded. The fluid employed was that made use of in cholera, consisting of chloride of sodium, chloride of potassium, sulphate of soda, phosphate of soda, and bicarbonate of soda dissolved in water. This was slowly injected by means of a syringe, first into the right arm and then into the left, until in the course of an hour and a half 106 ounces had been introduced. There was no immediate improvement, nor did the patient seem any worse. About ten minutes after the conclusion of the operation, however, consciousness began to return, and soon became so complete that the patient was able to converse with her friends, and take food in a natural manner. But she relapsed into drowsiness, and then into coma, and next day was very comatose, as much as before the operation. The injection was now repeated into one of the veins of the leg, into which the fluid was allowed to flow from an elevated funnel. A little chloroform had to be given during the exposure of the vein. Under the operation the aspect of the patient improved; the features became less pinched, the complexion less livid, and the pulse gained in volume; with these encouragements the injection was continued until increasing fulness of the superficial veins and some general appearance of congestion were taken as indications to stop. There was as yet no return of consciousness, in the hope of which the proceeding had been continued. It was now found that no less than 350 ounces, or seventeen imperial pints and a half, had passed in. This was a much larger quantity than had been intended, but the process was allowed to go on under the encouragement which the former attempt seemed to afford, and in the absence of prohibitive symptoms, until the increasing congestion was thus

interpreted. After the conclusion of the injection the patient remained unconscious for about three-quarters of an hour, then recovered complete consciousness, and retained it without drowsiness for nine hours, after which she became at times drowsy, but was for the most part sensible for thirty hours, after which there was a lapse into coma which was final and fatal. The protraction of consciousness after the second operation being longer than after the first might possibly have been partly due to the chloroform, though but little had been given. After the operation the turgescence of the veins gradually ceased, and a little œdema appeared over the tibiæ. Urine of low specific gravity (1012), which contained 1·8 per cent. of sugar, was passed freely. It gave no acetone reaction, though this had before been strongly marked. The bowels were loose, but not extravagantly so; the skin, which before had been dry, was moist, but not sweating. The heart's sounds were feeble, there was no murmur either in it or the great vessels. The acetone smell in the breath was still perceptible, though much less so than before. Within the space of thirty-two hours 456 ounces, more than twenty-two imperial pints, had been introduced into the veins. Five days before the injection the patient had been found to weigh eighty-one pounds and a half; after death the body weighed ninety-three pounds, the gain being no doubt of water. On examining the body post-mortem much superficial blood staining, along the course of the superficial veins, and some œdema were observable. The peritoneum contained eighteen ounces of straw-coloured fluid, the pleuræ twelve ounces, and the pericardium one ounce of blood-tinged fluid. The heart was small but healthy, its cavities blood-stained. The lower lobes of both lungs were loaded with blood, and besprinkled with punctiform extravasations. The spleen was firm, dark, and full of blood; it weighed eight ounces. The kidneys were full of blood and blood-stained. The brain was much congested, the veins loaded, the pia mater injected. The ventricles contained about half an ounce of blood-coloured fluid. The results of the examination could be summed up as venous engorgement and fluidity of blood. The hopelessness of diabetic coma under ordinary treatment was held to justify, or at least to excuse, treatment which was exceptional. The first injection, 106 ounces, appeared to be wholly beneficial; the result suggested only a wish that it had been more. As to the second, 350 ounces, the postponement of the expected benefit led to its being carried beyond the region of therapeutics into that of pathology; not only was consciousness restored, but morbid venous congestion produced. The delay in the return of consciousness in both instances suggested that the benefit was due rather to elimination than hydration. It was clear that 100 ounces could be introduced with advantage, and probably twice that quantity, but the results were not such as to promise more than temporary benefit. As a practical and safe conclusion, it was sug-

gested that the free drinking of water should be enforced before diabetic coma had established itself in cases where it was anticipated. (Lancet, March 8, p. 545.)

EPILEPSY.—Amylene Hydrate in.

Wildermuth writes in the *Deutsche Med. Wochens.* that he has in a number of cases obtained the best results in epilepsy from the use of amylene hydrate, and maintains that its employment is especially indicated when the epileptic attacks rapidly follow each other,—when there is marked bromism, so that a temporary use of some other remedy is necessary, and in nocturnal epilepsy, either alternately with bromides, or, in new cases, combined with atropine. The dose which he gives is from 30 to 60 grains in a ten per cent. watery solution. In some cases the amount given in a day may be increased up to two drachms without disadvantage. The taste may be disguised by dilute wine or syrup. If the patient has previously been under the influence of bromide preparations, the dose of the bromide may be rapidly diminished, and if the improvement continues, may be entirely suspended. Hypodermic injection of pure amylene hydrate may be given directly during the convulsion. Dr. Wildermuth adds that he has never seen any unfavourable after-effects follow the use of this remedy, with the exception that after a very prolonged use of very large doses there is considerable somnolence produced, and a certain amount of gastric disturbance. In many cases he writes that he has seen the convulsions entirely disappear after six or eight weeks' employment of this medication. (Therapeutic Gazette, Nov., p. 760.)

ERB'S PARALYSIS.—Two Cases of.

At the Medical Society of London, on Feb. 24th, 1890, Dr. Sidney Phillips showed a case of Erb's Paralysis in a man aged thirty-one. The patient had been in good health till Jan. 5th, 1890, when, after drinking too much, he fell down some stairs and struck the point of his shoulder; afterwards he found himself unable to use it. On examination the deltoid, supra-spinatus, infra-spinatus, pectoralis major (slightly), triceps, brachialis anticus, and supinator longus were found affected. They reacted only slightly to faradism, the deltoid not at all. The muscles were recovering slowly under the use of galvanism.

Dr. Beevor showed a somewhat similar case. A man aged thirty-seven, on Nov. 21st, was pitched off a cab, and fell on the left shoulder and side of the head, stretching the neck. He gradually lost the use of the arm. At first there was some anæsthesia about the shoulder-joint, and there was at present complete paralysis of the biceps, coraco-brachialis, brachialis anticus, deltoid, supra- and infra-spinatus. There was no reaction to the strong faradaic current, and the muscles gave the reaction of degeneration. Nearly all such cases were due to stretching of the brachial plexus, and

corresponded to a lesion of the fifth and sixth cervical nerves before joining the plexus. If in the monkey these nerves were divided, paralysis of the biceps, supinator longus, and deltoid followed. He quoted the case of a woman who went to sleep with her neck resting against the edge of the table, and paresis of these three muscles resulted. The same thing might happen in infantile paralysis, but, as the lesion was situated in the anterior horns, there was no accompanying anæsthesia. (*Lancet*, March 1, p. 468.)

HYOSCINE AS A SEDATIVE.

In 1887 and 1888, when in residence at the Leeds Infirmary, I frequently gave it under the direction of the physicians and surgeons, and its administration became quite the routine practice in almost all cases of mental derangement. I have also given it many times since. The solution generally used has been one of the hydrobromate, one grain to 200 minims, or of the hydriodide. These were found to be more convenient than the weaker solutions which were tried at first. The usual dose to begin with was $\frac{1}{100}$ of a grain, but this was generally largely increased. I have given as much as $\frac{3}{30}$. Most of the cases that I have seen have been such as occur in the ordinary run of hospital in-patients—notably, delirium tremens, acute mania following operation, and delirium caused by heart disease. In all of these its success has been most marked. The effect of the drug shows itself in from one to five minutes. The patient becomes less noisy, and his articulation indistinct, drowsiness then comes on, and, although in many cases the man seems to fight against the drug, he soon becomes quiet and lies quite still, often with his eyes partly closed. In about half the cases this state gives place to sleep. This is generally accompanied by stertorous breathing and by a peculiar twitching of all the voluntary muscles; the patient can with great difficulty be roused, and his pupils are dilated and do not react to light. Besides the cases mentioned above, I have given it to a man with intense neuralgia of the supra- and infra-orbital nerves. He was a confirmed opium taker, and morphia had little effect on him. Hyoscine frequently gained him some hours' sleep when morphia and chloral had failed. In yet another case, one of very severe chorea, it sent the patient to sleep after many drugs had been tried in vain. As regards unpleasant after effects, I may say that they are not so common as after morphia, though there is often some dryness of the throat and weariness. I have never seen any alarming symptoms caused by hyoscine, and believe that with ordinary caution it is a safe and very valuable remedy. (Mr. A. S. Barling, *Lancet*, Oct. 26, p. 876.)

HYSTERIA.—Anginal Attacks in.

Anginal attacks occasionally occur in persons suffering from hysteria, and many cases have been described by French authors (Marie and Huchard, *Lancereaux*, and more recently by Le Clerk,

who collected thirty-four observations) and some few have been related by English observers (Hill, McDonald). The hysterical pseudo-angina pectoris is distinguished from true angina by the following points (Huchard). 1. The age of the sufferer. Persons suffering from hysterical angina are young as a rule, yet true angina may occur in young females, as in the case reported by Dr. Wild in the *Medical Chronicle* for 1888. 2. The attacks occur not after violent exertion, but often without a palpable cause, and occur at regular periodic intervals. 3. The radiation of the pain is along the sternum and along the insertions of the diaphragm at the back. There is often marked hyperæsthesia of the skin over the left mamma, and occasionally we have a distinct hysterogenous zone there. 4. There is almost always marked dyspnoea, and the vasomotor phenomena are very prominent. 5. The patient shows a great deal of excitement, and there is not the anxious expression of countenance. 6. The co-existence of other hysterical symptoms, such as hemianæsthesia, contraction of the field of vision, hysteropileptic attacks, &c. 7. The absence of any signs of heart disease. (Dr. J. Dreschfeld, Practitioner, Jan., p. 37.)

[See also Dr. Dreschfeld's paper on Angina Pectoris and Pseudo-Angina, at p. 207; also articles at pp. 28, 29 of the *Synopsis* of this volume of the *Retrospect*.]

INSOMNIA.—Comparison of the Drugs used for.

Jastrowitz (*Berl. Klin. Wochenschr.*) considers insomnia, for the sake of convenience of study, as an essential disease. Among the drugs used for the treatment of insomnia, the first to be mentioned is alcohol in its different forms. In the severer varieties of chronic insomnia, and especially in those persons disposed to alcoholism, it is best to avoid it, but in the lighter forms it is often very useful. Opium and morphia are excellent hypnotics, and produce sleep most like the refreshing natural sleep. Caution must be exercised in conditions of congestion and in weakness of the heart. The formation of the opium-habit must also be guarded against. In children bromide of potash is to be preferred. Hydrate of chloral is the strongest hypnotic, but is dangerous in large doses. It is excellent in delirium tremens, status epilepticus, and in convulsive disorders. It is, however, to be avoided in heart disease, hysteria, cases in which there is difficulty in breathing, and in those persons in whom it produces no initial stage of excitement, and especially no alteration of the pupil. Paraldehyde in long-continued or large doses gives rise to a condition resembling that produced by alcohol. It is of value in hysteria, alcoholism, acute insomnia, the itching of jaundice, &c. As it is eliminated by and irritates the lungs, it is contraindicated in bronchial conditions. Its action is good in cardiac asthma; bad in emphysema and in arterio-sclerosis. It is not to be used in chronic insomnia and in conditions of extreme

excitement, but is of value in insomnia from moral causes and in the restlessness of epileptics. Amylene hydrate disagrees with the stomachs of many patients and produces slight swelling of the hands and face. It is given in the insomnia of all diseases; also to allay cough. Sulphonal acts slowly, and is consequently not of service in acute disease and to allay pain; but of value in conditions with motor unrest. After prolonged use it produces dizziness and a sensation of ataxia. In comparing the pure narcotic strength of these drugs they may be arranged in the following descending scale: Morphia, chloral, amylene hydrate, paraldehyde, sulphonal. If, however, they are arranged in the order of the proper hypnotic and uninjurious dose they stand: Chloral, sulphonal, amylene hydrate, paraldehyde, morphia. (*American Journal of Medical Science*, Dec., p. 612.)

MIGRAINE.—Powder for.

The following powder is recommended by Dr. Hammerschlag: R. Caffeine citratis grs. xv; phenacetini grs. xxx; sacch. alb. grs. xv. Divid. in partes æq. No. x, ad caps. amyl. Sig. One capsule every two or three hours. (*American Journal*, Nov., p. 511.)

SCIATICA.—Discussion on the Treatment of.

At a recent meeting of the Philadelphia Neurological Society, there was an important discussion on the treatment of sciatica. It was opened by Dr. Cohen, who reported a cure by injections of osmic acid. His patient was aged forty-five, and had suffered more or less for twenty years. He had been treated with arsenic, potassium iodide, antipyrin, antifebrin, and injections of atropine, morphine, and theine. Electrical treatment had also been employed; as well as blistering, nerve-stretching by elevating the limb during ether anæsthesia, and finally nerve-stretching after incision. Still the pain had not been relieved. Salol had also been tried, but without any permanent benefit. On March 29, 1888, an injection of ten minims of a 1 per cent. solution of osmic acid was made deeply into the thigh near the point of emergence of the sciatic nerve; and fifteen minims were injected on each of the two succeeding days. Some improvement was manifested; and during the next two weeks tri-weekly injections were made of twenty minims each. On April 19, the patient was much better, and was able to walk without crutches; twenty minims were then injected rather higher up in the buttock, and he was discharged from the hospital. On May 17, the patient reported that he could walk readily without a cane, but that he still had some pain during the night. Thirty minims were therefore injected at the same spot; and when the man had recovered from the soreness caused by the injection he was practically cured. He was seen on January 1, 1889, and was then quite well. Dr. Madison Taylor related a case at the same meeting, in which an obstinate sciatica had been cured by rubbing in an oint-

ment of mercury, belladonna, and iodine, on a glass rod two feet long and as thick as a broom handle, the application being for fifteen minutes at a time. Subsequently he found that the rubbing was just as efficacious without the ointment; it was a form of massage that was easy of application and very efficient. In the course of the full discussion which followed these two papers nearly every method of treatment found some advocate. Dr. Weir Mitchell said that in all cases great attention ought to be paid to the constitutional state of the patient; and when this has been done, massage will very often suffice to complete the cure. In more severe cases the cautery was his favourite remedy. It should be used lightly, so as not to destroy the skin, which ought to be touched lightly three or four times along the track of the nerve. Such burns require scarcely any dressing. Nerve-stretching had not produced any permanent benefit in his experience. But he laid most stress on the necessity for absolute rest; and in order to secure this, he said that it was his practice to order an old-fashioned thigh-fracture splint to be worn continuously on the affected limb so as to prevent any movement of the leg. Whatever the other treatment adopted might be, this should always be done. The persistent application of ice along the nerve track by means of bags from the sciatic notch to below the knee, kept on day and night, had yielded brilliant results; in one instance the application had been kept up for three weeks. (*Practitioner*, Nov., p., 373.)

TABES AND PROGRESSIVE PARALYSIS.—Their Relation to Syphilis.

Strümpell (*Wien. Med. Presse*) says that the existence of a connection between progressive paralysis and syphilis is admitted by the majority of neurologists, and that it is of great importance to determine exactly the nature of this relation. It has long been known that after acute infectious diseases certain secondary nervous affections may appear. These are characterized by the development, a certain time after the original disease is past, of degenerative conditions, usually in the peripheral nerves, whose clinical results make themselves known now as paralysis, now as ataxia, now in other ways. In all cases, however, the cause of the clinical symptoms is the same; namely, a simple degenerative atrophy of nerve fibres. The specific organized cause of the original disease never produces but the one result; as, for example, specific croupous inflammation in various parts of the body in diphtheria, and the specific lymphoid new formations in the organs in typhoid fever. This fact proves that the cause of the nerve degenerations is to be sought in the action of chemical products of disease, the results of the influence of the primary infection or its immediate effects. These substances need by no means be injurious metabolic products from the bacteria of the disease, but may as well be substances resulting from the

degeneration and absorption of such effects of the disease as exudates and new-formed cells. This supposition would explain why it is that the nervous diseases in question almost never appear until after the original disease has run its course. These same statements would seem to apply to the chronic infectious diseases. In tuberculosis there is often a widespread peripheral degeneration of the nerves, but never with the presence of tubercle bacilli or characteristic cellular new formations. Though we are far from understanding thoroughly the true character of syphilis, it would seem that here, also, we must distinguish between the immediate action of the bacilli, seen in the production of the specific gumma, and the secondary degenerative changes depending on the action of a chemical poison, and represented by the post-syphilitic nervous diseases, whose commonest, though by no means only forms, are tabes and progressive paralysis. This explanation preserves the fact of the etiological relation of syphilis to these two diseases, without obliging us to wonder why antisyphilitic drugs are of no effect in their treatment; and we can understand, too, the existence of tabes as a primary systemic nervous affection, without having recourse to the unfruitful and untenable assumption of a primary alteration of the vessels to explain its origin. Finally, the intimate connection of tabes with progressive paralysis is made more clear by this theory. Both are but different localizations of the same pathological process; and their frequent occurrence with and after each other is not the combination of two different diseases, but the complete development of the action of one and the same pernicious process. (*American Journal of Medical Science*, Feb., p. 184.)

TETANY.—Two Cases of.

F. C. Shattuck (*Boston Med. and Surg. Journal*) exhibited at the Boston Society for Medical Improvement a case of tetany occurring in a girl of twenty-one years. Five years previously she had suffered from a very severe attack of diphtheria, followed by paralysis of the fauces and right leg. After recovery she began to experience occasional cramps, at first limited to the right hand and arm, and lasting only one or two minutes, but gradually spreading to the other limbs, lasting sometimes an hour, and becoming more frequent. It was easy to produce a spasm in either or both arms by pressure in the axillary or clavicular regions. Prompt relaxation was effected by the application of the constant current. The only disease with which the affection could in this case be confounded was hysteria, from which it could be distinguished by the intermittent and bilateral features and the total absence of other indications of this affection. In a case which the author saw some years ago, the possibility of tetanus had to be taken into consideration.

S. L. Abbot also reported a severe case of the disease, which yielded promptly to urethan. The disease had commenced without

known cause six weeks before, and when first seen the patient was suffering from severe cramps, affecting all the flexors of the extremities, the abdominal muscles in part, the outer muscles of the thighs, and those about the shoulders. They increased in frequency, occurring on some days every half hour, and being easily excited by any muscular effort. There was some pain down the left leg, with tenderness near the sacro-iliac synchondrosis. General sensation was normal, and the special senses were unaffected. Ten grains of urethan were given every two hours during the day, the dose to be increased to fifteen grains at bedtime. A milk diet was also ordered. Within about twenty-four hours the spasms had ceased entirely. (*American Journal*, Dec., p. 612.)

[See also Dr. Stewart's article on the Symptoms, Types, and Nature of Tetany, at page 180 of this volume of the *Retrospect*.]

THOMSEN'S DISEASE.

At the Medical Society of London, on January 27th, 1890, Dr. Hale White showed a patient suffering from Thomsen's Disease. He was a man aged nineteen. He had suffered since he was a child. His father, one sister, and two cousins were affected. The patient had the characteristic stiffness of voluntary movement. Thus, if he flexed his fingers, he could not extend them again for about eight seconds; the second time he flexed them the time was four seconds; and gradually as he flexed them as quickly as he was able, he could soon flex them rapidly and regularly. This peculiarity of movement was to be seen in almost all the voluntary movements of the body; but the muscles of the eyes and larynx and the interossei were not implicated, nor were the acts of defæcation, micturition, or respiration. Upon mechanical stimulation of either motor nerves or muscles, the muscles contracted more readily than normal; the contraction and the relaxation were slower than in health. To the faradaic current the contractions were quantitatively normal; but they lasted some seconds, and relaxed slowly. The same was true of the contractions induced by galvanising the nerves. The galvanic reactions of the muscles showed the same slow, prolonged contractions, and A.C.C. was in some muscles more easy to obtain than K.C.C. Dr. Hale White exhibited a series of myographic tracings which fully illustrated all these points, and also demonstrated that the latent period of muscular contraction was normal. Sections of pieces of muscle that had been excised were exhibited, and it was seen that the muscular fibres were hypertrophied, that the transverse striation was but little marked, that the line of the sarcolemma was indistinct, that the nuclei were slightly more numerous than they should be, but that there were no vacuoles, nor was there any increase of the interstitial tissue. It was pointed out that this patient had all the characteristics of this disease. (*Lancet*, Feb. 1, p. 246.)

TOTAL TRANSVERSE LESIONS OF CORD.—Symptomatology.

At the Royal Medical and Chirurgical Society, on Feb. 25, 1890, Dr. Charlton Bastian communicated a paper on the Symptomatology of Total Transverse Lesions of the Spinal Cord, with special reference to the condition of the various reflexes. The author pointed out how widespread the notion was amongst physicians that in cases of total transverse lesions of the spinal cord, either in the lower cervical or upper dorsal region, the reflexes dependent upon the lumbar region of the spinal cord, after any shock might have subsided, became exaggerated, whilst more or less of rigidity showed itself in the lower extremities. This opinion he himself entertained till about ten years ago, when two of such cases came under his care and were, over a period of several weeks, very carefully examined. The notion itself had been based upon the observed effect in man of partial loss of brain influence over the cord, together with the results of experiments made upon animals of very much lower organisation by physiologists. He pointed out, however, that it was not a question as to what would happen when brain influence in man was partially cut off from exercising this or that influence upon the spinal cord, but rather what the results would be when the influence of both cerebrum and cerebellum were completely cut off from the lower half of the spinal cord. What would happen with animals much lower in the scale was a totally different question. Having called attention to statements made by himself upon this subject in "Quain's Dictionary of Medicine" in 1882, the author cited some recently published neurological textbooks to show that the old opinions as to the exaggeration of the reflexes under the conditions in question were still enunciated. The author, therefore, now published in detail four cases of total transverse lesion in the lower cervical or upper dorsal region of the spinal cord, upon the prolonged examination of which his opinion was originally based that all the so-called tendon reactions and lumbar reflexes were abolished, excepting the reflex actions of the bladder and intestines, which were found to be impaired to an extent that was specified. He subsequently cited twice as many recorded and other cases of fracture dislocation affecting the cervical or upper dorsal regions of the spinal cord in which sensibility as well as motility had been absolutely lost, and in which the reflexes had remained abolished after shock had passed off—the necropsies in these cases having shown that here also the crushing and other lesions were limited, and that the lumbar swelling was undamaged apart from the occurrence of secondary degenerations. The author insisted that the loss of sensibility must be absolute as well as the loss of voluntary power, in order to bring about the abolition of the reflexes. He pointed out that the two principal objections that had been advanced against the acceptance of his views were (1) that the abolition of reflexes was only temporary,

and would cease with the disappearance of shock--this being an objection which he considered to be fully met by his own cases of transverse softening, where there was little or no shock and where the reflexes continued absent for week after week. The other objection was (2) that there must in these cases have been lesions in the lumbar swelling of the cord; to which he answered that in three of his cases no such lesions were discovered, and that in all the more numerous cases of injury that he had cited in his paper the lumbar region was reported to have been uninjured and to have a healthy appearance. The author showed that the subject discussed in this paper was of great interest, not only (1) from the point of view of the importance of obtaining a correct symptomatology for total transverse lesions of the spinal cord, but (2) that it had important bearings upon some other points in the diagnosis of disease of the spinal cord, and (3) because it tended to throw great light upon the pathogenesis of rigidities and exaggerated reflexes, and seemed to cast a sidelight upon one of the functions of the cerebellum. The author believed, in short, that the abolition of the reflexes in these cases was due to the simultaneous cutting off from the lumbar region of the cord of the influence not only of the cerebrum, but also of the cerebellum. (*Lancet*, March 1, p. 466.)

AFFECTIONS OF THE CIRCULATORY SYSTEM.

ANGINA PECTORIS.—Therapeutics of.

Apart from the treatment of the primary affection which gives rise to the symptoms, there is the treatment of the attack itself. Of the nitrites, the nitrite of amyl acts quickly, but its action is of very short duration; nitro-glycerine on the other hand has a more permanent effect, and may be given for a few days following the attack. In the case of angina, where the chief symptom was dyspnoea, the nitrites had no effect whatever, and in the pseudo-anginal attacks of neurasthenia, gout, and chronic nicotineism I have found them of little use. The good effects of morphine are too well known to be mentioned. Morphine should, however, be avoided when the pulse is feeble and quick, and when there is great pallor with profuse perspiration. The inhalation of chloroform has been recommended by several authorities. I have only tried it in two cases, and in one very soon after the inhalation the pulse became irregular, thread-like, and collapse set in. I feel bound therefore to offer a caution against its use. Subcutaneous injection of ether I have several times found useful where the heart's action appeared very weak. For the treatment of the pseudo-anginal attacks no general principles can be laid down. In the pseudo-angina of neurasthenia I have found well-regulated muscular exercise of very great use. (*Dr. Dreschfeld, Practitioner, Jan.*)

ANGINA PECTORIS AND HEART PALSY IN ACUTE INFECTIVE DISEASES.

1. The group of symptoms described as “angina pectoris” may show themselves in the latter stages of any of the acute infective diseases, particularly septicæmia, or pyæmia, or diphtheria. 2. The anginal attacks of acute infective disease often answer the definition given by Dr. Byrom Bramwell of true angina pectoris—namely, “a neurotic affection characterised by paroxysms of intense pain in the region of the heart, and a terrible sensation of impending death . . . the affection is in many cases associated with organic disease of the heart and the root of the aorta, and in its typical and severe forms is apt to prove suddenly fatal.” Be it noted that this author, while drawing a clinical distinction between true angina pectoris—rarely met with before the age of forty—and the pseudo-angina, or attacks of cardiac pain to which young persons are liable, is careful to state “that the two forms run one into the other, and that it is sometimes difficult or impossible to separate them at the bedside.” 3. These seizures of angina in infective disease appear to arise in the following ways:—*a.* Deficient innervation of the heart, or a true cardiac paralysis or heart-palsy. *b.* A granulo-fatty degeneration of the heart-muscle, the result of an acute parenchymatous myocarditis. *c.* A sudden increase of tension in the peripheral arteries, due to a cause acting upon the body from without, reacting upon an already weakened heart—the *angina pectoris vaso-motoria* of Nothnagel. 4. Any one of these causes may operate singly in a given case; or two or more of them may be combined so as to determine an anginal attack. 5. Treatment is often attended by the happiest results in the angina of heart failure from infective diseases—the most useful therapeutical measures being:—In *a*, the administration of alcoholic and diffusible stimulants; the application of hot poultices over the heart, and of mustard epithems to the extremities. In *b*, besides the foregoing, the administration of heart tonics and stimulants, such as nux vomica and strychnin, arsenic, digitalis, convallaria, and strophanthus. In *c*, the administration of the nitrites—spirit of nitrous ether, nitrite of amyl, nitro-glycerine, as well as iodide of ethyl, and such like remedies. (Dr. J. W. Moore, Dub. Med. Jour., Feb.)

AORTIC DISEASE.—Use of Digitalis in.

There is one class of valvular diseases in which, common opinion says, digitalis does harm, and that is, in aortic disease. The use of digitalis in diseases of the aortic valve is governed by the same laws which govern its use in diseases of the mitral valve. Whenever in diseases of the aortic valve the heart is weak, you use digitalis precisely as you use it in diseases of the mitral valve. But it so happens that, in cases of aortic disease, excessive hypertrophy is common, while it is very rare in cases of mitral disease. So that if you take at random a thousand cases of cardiac disease, you will

find that digitalis suits a larger percentage of mitral disease cases than of cases of aortic disease. This is not because there is any difference in the application of the remedy or in the rules governing it, but simply because aortic disease more frequently gives rise to excessive hypertrophy than does mitral disease. (Prof. Wood, p.216.)

CARDIAC TONICS—Digitalis, Convallaria, Strophanthus.

In opening the discussion on cardiac tonics at the recent International Congress of Therapeutics and Materia Medica at Paris, M. Bucquoy directed attention chiefly to the comparison of strophanthus and convallaria with digitalis. It was important to realise which of the drugs that strengthened the contraction of the heart had also a constrictive influence on the vessels; these would be most useful in mitral incompetence. Those which acted on the heart only would be better suited for aortic disease, and especially for conditions of increased vascular tension such as chronic interstitial nephritis. Digitalis belonged to the first group, convallaria and strophanthus to the second; and it was a useful point in the employment of the latter that their effects did not accumulate as those of digitalis did. The states of hypertrophy or degeneration of the muscle of the heart and atheroma of the arteries complicated the problem. M. Bucquoy showed from many sphygmographic tracings the action of strophanthus in increasing the height of the pulse-wave in mitral incompetence, and exaggerating its rapid rise in aortic regurgitation. M. Masius, of Liège, was not inclined to consider any other cardiac tonic than digitalis of high value, but was anxious to express his opinion that the best results were obtained when the powdered leaves of digitalis were given—an opinion with which M. Dujardin-Beaumetz could not agree, as he had found such a powder frequently irritating to the stomach. M. Féréol advocated Professor Potain's practice of giving Nativelle's digitalin in doses of 1 milligramme ($\frac{1}{60}$ grain) at long intervals; the tonic and diuretic effects of such a dose lasted for at least forty-eight hours. M. Lépine preferred giving a single large dose of the infusion. In animals killed while under the influence of strophanthus he had found the heart in diastole and the left ventricle dilated as in death by aortic disease. M. Dujardin-Beaumetz thought that our knowledge of digitalin was too incomplete to justify its use in therapeutics. M. Petrescū, of Bukharest, considered a large dose of digitalis (1—2 drachms of leaves in infusion) a very efficacious remedy in the early stage of pneumonia. He had published details of 775 cases in which he had given this, with the result of showing that it was a dose that would be borne by adults and tended to cut short the attacks of pneumonia. M. Féréol had a high opinion of convallaria as a drug which did not lose its power after long use. In some cases he had used it for several years during every alternate fortnight, and had found with these remissions that it had not lost its efficacy at all. (Practitioner, Jan., p. 59.)

MITRAL STENOSIS IN CHILDREN.

At the Medical Society, on Dec. 23rd, Dr. A. E. Sansom read a paper on the Pathological Anatomy and the Mode of Development of Mitral Stenosis in Children. The paper was founded on forty cases clinically observed and nineteen post-mortem examinations, all in children of twelve years of age and under. In regard to *morbid anatomy*, mitral stenosis in its least pronounced degree was evidenced by a ring of granulations around the mitral aperture on its auricular aspect; these vegetations might be friable and fibrin-covered, or fibrous and firmly fixed. The subjacent structures were firmer than normal, and formed a thickened ring. The thickening might further involve the curtains, cords, and columns of the mitral valve. In the more pronounced stenoses the mitral curtains were fused to form a funnel, the ventricular aperture of which might be of varying degrees of patency to the dimensions of a crowquill. In the child funnel-mitral was to buttonhole in the proportion of 8 to 1, while the buttonhole form was the most frequently observed form in adults. The left auricle was often greatly hypertrophied or dilated; its wall might be a quarter of an inch in thickness, or it might be dilated extremely and its wall very thin. The left ventricle was usually of normal or subnormal dimensions; when enlarged it was usually in association with general hypertrophy of the heart and pericarditis. The right chambers were almost invariably dilated. Mitral stenosis was *not a congenital malformation*. It was observed in one case of congenital anomaly, but then it was distinctly the result of foetal endocarditis. It was extremely rare under the age of five years, and might be considered as invariably the result of endocarditis. In every case examined post-mortem there was an association with endocarditis, pericarditis, or both these affections combined. In regard to etiology, the cases showed a very strong association with rheumatism. In the more severe forms of rheumatism mitral insufficiency was a far more frequent result than mitral stenosis, whilst in the slighter forms the proportion of the latter to the former greatly increased. The author considered that mitral stenosis was the result of a limited and slow endocarditis, whilst mitral insufficiency was due to the retraction of the mitral curtains, the result of a more widely spread and more intense inflammation. Cases were quoted showing that mitral stenosis was manifested occasionally without any evidence of rheumatism; the causes in such cases were either protracted mal-nutrition or a sudden lesion of the nervous system. Except chorea, no sudden nervous lesion—e.g., hemiplegia, epilepsy, hemichorea—was evidenced in the subjects of mitral regurgitation apart from stenosis. The author considered it probable that in rare instances mitral stenosis might be initiated in children by a form of endocarditis which was non-rheumatic. A probable initiatory cause was fright (well-defined terror or night terror). In such cases a temporary arrest of the

heart's action was followed by violent palpitation, and in the disturbed conditions of blood-pressure violence might be done to the delicate valve structures of the child. So a limited endocarditis might be initiated at the valve edges, the first lesion, perhaps, being minute hemorrhages such as have been experimentally produced in animals (by increasing the blood-pressure in the aorta) by Prof. Roy and Mr. Adami. (Lancet, Dec. 28, p. 1334.)

PAROXYSMAL HURRY OF THE HEART.

At the Medical Society of London, on March 10, 1890, Dr. Samuel West read a paper on Paroxysmal Hurry of the Heart. The following were the chief points. He said that the characteristic symptom of this affection was a sudden attack of extremely rapid action of the heart, in which the beats might run up to 200 or 300 in the minute. Often there was palpitation, but not always, and sometimes cardiac pain. The attacks came on without any assignable cause, and ceased as abruptly. They might, though not necessarily, incapacitate the patient for the time, but when the attack was past no further inconvenience was felt. The paroxysms varied in duration from a few minutes to several hours or even days, and the intervals between them were equally variable, sometimes extending to years. In many cases there was no evidence of heart lesion, though at the time of the attack the heart might be dilated. The affection might last for years without invaliding the patient except for the time of the attack. Some cases possibly recovered, but others died of cardiac failure, so that the existence of cardiac lesion could not be altogether excluded. Usually the affection did not interfere with the occupations of life permanently. The chief interest of the affection centred in the question as to its real nature. Dr. Bristowe, to whom we were indebted for the fullest account of the malady, regarded it as functional, and though there were some cases where heart disease was present, he considered it secondary to the attacks of palpitation. There appeared to be some evidence in favour of the contrary view, for several of the recorded cases gave histories which would explain the existence of heart lesion, especially of rheumatic fever and syphilis. On reviewing the cases as a whole, the probabilities seemed to be in favour of some lesion, and if so it was most likely to be one of the myocardium. This could not yet be proved, and must therefore for the present remain a matter of opinion. These cases had been brought forward because the affection seemed to be one to which less attention had been given than it merited. (Lancet, March 15.)

PANCREATIC HEMORRHAGE.—A Cause of Sudden Death.

An uncommon cause of sudden death has recently been recorded by Dr. F. A. Harris, of Boston. A working woman, aged thirty-five, of doubtful antecedents, was found on a doorstep, complaining that she felt very ill; a few hours before she had been at an "employ-

ment office," seeking work. The patrolman detecting a smell of alcohol in her breath seems to have considered that she was intoxicated, and had her removed from the doorstep to the station in a patrol wagon. On arrival she was found to be dead. A post-mortem examination was made; the body was well nourished, the brain and membranes, the heart, the great vessels, and all the organs, with the exception of the pancreas and lungs, were healthy. The right lung was oedematous, and there were some extravasations into the periphery of the lower lobes of both lungs. There was hemorrhage into the splenic end of the pancreas; the whole of this third of the organ being infiltrated with blood, which was easily expressed on section. There was also a small amount of blood effused into the subperitoneal tissue, extending nearly to the suprarenal capsule. The whole amount of blood was apparently not more than a drachm and a half, by estimate. In gross, the pancreas presented otherwise nothing unusual. It was not enlarged, nor were there any gross appearances of fatty degeneration, or abscess or embolic infarction. (*British Medical Journal*, March 8, p. 564.)

TACHYCARDIA.—Rapid Action of the Senile Heart.

Tachycardia, rapid action, is the commonest phenomenon associated with the senile heart, and this varies in its nature, quality, and cause. Tachycardia is a term originally applied to cases of a paroxysmally rapid (120-200) but regular pulse of neurotic origin, but such typical cases shade off in every direction. Tachycardia is a rapid heart-beat, more continuous than mere palpitation, and less forcible. It may last for days, weeks, or many months—even for years; the heart-beat is feeble, at times conveying an impression of irregularity, the pulse is rapid but regular, and the blood-tension low. The heart seems to be set free from the inhibition of the vagus, and to be run off with by the accelerators, the augmentors taking no part. In this tachycardia differs from its most closely allied congener, Graves' disease, in which forcible pulsation of the heart and the vessels of the neck is an early and sometimes an only symptom. For in Graves' disease we may have violent perturbative palpitation, without either exophthalmos or goitre, sometimes with the exophthalmos alone, and sometimes with the goitre alone, the symptoms at first in abeyance being superadded if the disease progresses. But Graves' disease affects the young chiefly and not the old; still it occurs often at and even over middle life, and the palpitation is so distinctly neurotic in character, that any notice of tachycardia would be incomplete without some reference to an affection so closely allied. There are also cases in which, from childhood onwards, the heart beats persistently at about 150 per minute without apparent detriment to health, the heart-rate slowing off as age advances. In connection with the senile heart, and apart from all other possible causes, I have seen many cases of tachycardia, pure and simple, lasting for months or years, some in whom

recovery took place, and who after recovery had again—sometimes after years—a relapse, owing to some breakdown in the general health. (Dr. G. W. Balfour's *Essay on the Senile Heart*, Edin. Med. Journal, Jan., p. 598.) [See also p. 210 of this vol. of the *Retrospect.*]

THORACIC ANEURISM.—Diagnosis and Treatment.

At the Medical Society of London, on Dec. 9, 1889, Dr. R. Douglas Powell opened a discussion on the subject of the diagnosis and treatment of Aneurysm of the Aorta. Although the anatomical description of aneurysm still included the fusiform and sacculated varieties, yet, clinically, all the features of aneurysm were grouped about the sacculated form, and in regard to clinical signs and treatment, the fusiform variety merged into the form of heart disease, with which it was associated, and to treat it seriously as aneurysm was but to damage the prospects of the patient. In this respect the diagnosis between the two varieties was important. In the fusiform variety the signs were—with rare exceptions—manifested about the commencement of the vessel, no pressure signs were observed, and death occurred, not by rupture or compression of vital parts, but from cardiac failure, angina, or syncope; the treatment was that appropriate to the heart condition. The essential phenomena of the—clinically—true or sacculated aneurysm were: First, those of pressure tumour signs; secondly, those indicative that the tumour was a vessel tumour, a diverticulum from the vessel. To attach primary importance to the signs of arterial disease or disturbance without sufficient inquiry for those of tumour was to invite error in diagnosis. This view was illustrated by reference to cases of vasomotor paresis of the aorta, causing pulsation thrill and murmurs of aortic regurgitant disease with locomotory impulse of the vessel of uncovered aorta from retracted fibroid lung, giving pulsation and murmurs resembling aneurysm. Still more common were cases of pulsation of the abdominal aorta, often the most difficult to recognise from aneurysm. In all these cases, however, although the signs of vessel disorder or disease were abundant, those of tumour causing localised pressure were, on sufficiently careful examination, found to be absent, and in their absence the diagnosis of aneurysm could not be substantiated. Dr. Powell referred to three cases of abdominal aortic pulsation mistaken for aneurysm, seen in quick succession, in two of which there was associated mobility of the kidneys. In some cases the administration of chloroform was quite necessary in order to explore the aorta with sufficient completeness. A systolic murmur when heard over a localised area remote from the heart was of value in diagnosis, but in about half the cases of aneurysm which presented themselves no murmur was present, and in a portion of the remainder the murmur heard was by no means the most important sign present. A diastolic murmur was of great diagnostic value, for it furnished distinct evidence of intra-arterial disease, and if therefore associated with

the pressure signs of tumour, the aneurysmal nature of that tumour was almost demonstrated. Thrill was a comparatively rare sign in true aneurysm, a common one in spurious aneurysm and in simple dilatation of the vessel. Dr. Powell grouped the pressure signs of aneurysm as affecting the parietes, the viscera, the nerves, sympathetic and pneumogastric, the air tubes, the œsophagus, the vessels, and observed that they were common to aneurysmal and other tumours, aneurysmal pressure symptoms exhibiting, however, more inconstancy than those of solid growths; the history and build of the patient and the superadded signs symptomatic of vessel disease completed the diagnosis. Some of these signs he had already alluded to; he would however especially mention a systolic jog often appreciable to the ear through the medium of a rigid stethoscope, and, of greater importance, the diastolic shock sound in many cases could be similarly appreciated. This, like the preceding, required the rigid stethoscope to be well made out, and certain conditions were necessary for the presence of the second shock sound: first, the aneurysm must be situated about the arch of the aorta; secondly, the aneurysm must be sacculated; and, thirdly, there must be no serious aortic incompetence. Dr. Powell discussed the mechanism of this sound, and observed that it was often present in the absence of other signs, and when well marked was absolutely diagnostic of aneurysm, differentiating in many cases most usefully from other tumours. He regarded the laryngoscope as both of direct and supplementary service in diagnosis, but regarded the sphygmograph as of little use except as a recording instrument. Dr. Powell regarded Tufnell's method of treatment as most valuable when it could be well carried out, and especially in cases of abdominal aneurysm and of sacs pressing deeply upon vital parts; also in congested aneurysm when a venesection might sometimes be employed first with advantage. Tufnell's method (1) diminished the cardiac beats, and therefore the aneurysmal distensions, by many thousands daily; (2) it reduced blood volume, and was said to inspissate and render more fibrinous the blood; (3) it reduced blood pressure, slowed the current through the aneurysm, and so favoured conditions for clotting from the periphery. He regarded this clotting as not wholly a mechanical process, but believed that in the stagnating current the white corpuscles made for the periphery, and, perhaps, carried with them that coagulating principle, lecithin, which the late Dr. Wooldridge had described as especially associated with them. Dr. Powell condemned the wire and galvano-puncture treatment of aneurysm as causing clotting of the wrong sort and in the wrong place, that was, in the centre rather than from the circumference of the aneurysm, but in certain cases severe symptoms had been relieved by them. He thought possibly in external sacs Wooldridge's extract of lecithin might be injected, with great caution however. (*Brit. Med. Journal*, Dec. 14, p. 1336.)

THORACIC ANEURISM.—Diagnosis and Treatment.

In the discussion on Dr. Douglas Powell's paper, Dr. Broadbent said: Aneurysm of the ascending aorta might attain a considerable size, and yet produce very little pressure upon neighbouring parts, owing to its natural mobility. So much was this the case that he was sometimes in the habit of alluding to this form as the aneurysm of physical signs, while aneurysm of the arch proper, or of the descending part, was rather an aneurysm of symptoms. He said that a murmur was rather the exception than the rule. One of the most valuable signs, independently of this, was the diastolic shock, either audible or perceptible to the hand. Passing on to the question of treatment, he agreed that fusiform aneurysm was not amenable to any treatment; the only thing was to lower the general intra-arterial pressure, enjoining rest if otherwise necessary, but not with the idea of promoting a cure. He had nothing to add with respect to the Tufnell treatment, but his own experience with iodide of potassium was that it produced striking effects in promoting consolidation within the sac. He mentioned an instance which came under his notice many years ago, when he was house-physician to St. Mary's Hospital. In that case rest and careful dieting had been carried out for months without any beneficial result, but consolidation promptly took place when iodide of potassium was administered. That was an experience many times repeated within his own observation. He observed that the condition of the patient would not, as a rule, permit of large doses of iodide of potassium being given while carrying out the Tufnell treatment. His explanation of the action of iodide of potassium was that it virtually effected the same thing as the Tufnell treatment, draining off the fluid by the kidney and so inspissating the blood. He mentioned the case of a woman who had remained in St. Mary's Hospital for upwards of two years; iodide of potassium had been tried in the first instance without effect, and they were reduced to watching the aneurysm gradually increase in size. Later on it occurred to him that the cases in which the iodide of potassium did most good were those in which there was a large sac with a small mouth, and he decided once more to give the iodide a trial, this time with complete success. He concurred in Dr. Powell's views as to the use of iron wire, but with regard to galvano-puncture he related an interesting case of left subclavian aneurysm, in which consolidation had been twice effected by this means, but on both occasions the clot had subsequently broken down. The aneurysm was ultimately completely cured by simple pressure with the shot-bag. He only resorted to bleeding when there was pain, but the relief was then very striking. Alluding to Dr. Sibson's plan of treatment by ergot, he said it unquestionably diminished the size of the tumour, though this was not due to its specific action on the muscular fibre in the sac wall, since he had never been able to discover any there, though

he had carefully examined the sac walls in a number of cases. (British Medical Journal, Dec. 14, p. 1337.)

TRANSFUSION.—Intra-venous Injection of Saline Solution in Cases of Hemorrhage.

At the Leeds and West Riding Medico-Chirurgical Society, on Oct. 18th, 1889, Mr. Littlewood, in reading a paper on this subject, said: Hemorrhage was fatal because there was not sufficient fluid in the vascular system, and not on account of the lost corpuscles and proteid elements of the blood. Attempts to supply these, either by the direct transfusion of blood or defibrinated blood, were difficult, very little good, and sometimes positively dangerous. In more than a dozen cases he had transfused saline solution (Little's formula) with Aveling's apparatus; no bad results directly due to the operation were observed in any of the cases. He thought a solution of common salt (one drachm to a pint) was equally good, and in cases of emergency more easily obtainable; and that transfusion by a gravitation apparatus was less complicated than Aveling's. He read notes of two successful cases. (Brit. Med. Journal, Nov. 9, p. 1040.)

AFFECTIONS OF THE RESPIRATORY SYSTEM.

ACUTE PNEUMONIA.—Local Application of Ice in.

My conclusion is, that there is reason to believe that the ice-bag applied over a pneumonic lung has a directly curative influence, that it does not simply reduce the general temperature, but that it distinctly tends to repress the inflammatory process in the lung, with more or less success according to the severity of the case, and the height which the inflammation has already reached. This is true, whatever theory of the causation of the disease be adopted. Coccus or no coccus, the ice-bag benefits an ordinary pneumonia. Whether its action is beneficial in the epidemic and "pythogenic" forms of the malady I cannot say, having no experience of these. I will only add, as confirmatory evidence, that some months ago my colleague, Dr. Angel Money, published a note in one of the medical journals recommending the use of the ice-bag in the pneumonia of children, and that in the *Lancet* of Aug. 10th of this year there is a statement that Dr. Fieandt, a Finnish medical man, "has treated no less than 106 cases of pneumonia with ice, and with the best results. Though ten of the cases were of double pneumonia, only three out of the whole number succumbed, notwithstanding that the epidemic was by no means a slight one." Thus the mortality was only 3 per cent. With this may be contrasted some figures given in the same journal on July 27th of this year, in which it is stated that "in the 1,000 cases of acute lobar pneumonia treated at the Massachusetts General Hospital from 1822 to the present time, there was a mortality of 25 per cent.;" and the authors add that "treatment has not in-

fluenced the mortality rate nor the duration of the disease or of its convalescence." If this rate of mortality had prevailed among my eighteen cases I should have lost four of them, and four is precisely the number which, as I have already shown, were almost certainly saved by the ice-bag. (Dr. D. B. Lees, p. 230.)

ACUTE PNEUMONIA.—Treatment by Ice.

In discussing Dr. Lees's paper (see page 230 of this volume) at the Harveian Society, on Oct. 17, 1890, Dr. Goodhart said he had for eighteen months used no other application than the ice-bag in cases of acute pneumonia, and he gave an account of eighteen cases thus treated. A good result was obtained in eight cases, the temperature falling promptly, the pulse becoming decreased in frequency, and convalescence being rapidly established. In seven cases it was doubtful if the treatment had had any effect whatever; while in three cases symptoms of collapse were produced of a very temporary nature, for it subsided as soon as the ice-bags were removed. It was difficult to eliminate the question of the natural crisis of a pneumonia having coincided merely with the application of the ice, but it was also possible to underrate the value of any treatment because of the presence of pleurisy, which interfered with the beneficial results of the remedy. Dr. Goodhart, however, concluded that there was no danger in applying this treatment, such collapse as might occur being easily detected, and remedied by brandy and warmth to the feet, and by avoiding its use in patients under two years of age. He himself did not think that collapse was increased by the application of cold over the cardiac region. Moreover, he believed that warm applications were greatly overdone, and that the ice treatment was a useful alternative. (Lancet, Nov. 2, p. 908.)

ASTHMA.—Employment of Nitrite of Sodium in.

Of the thousand and one things which have been tried for this disease, nothing in my experience is equal to the nitrite of sodium. I am not fond of mixing drugs, and I therefore generally give it alone. In some cases, however, with the object of promoting sleep, I combine it with hyoscyamus, and in others, again, I have found the tincture of lobelia of some additional benefit. When the nitrite of sodium first came into use I gave some large doses (ten to fifteen grains) in a case of uncomplicated asthma, which had occurred in repeated attacks for some years. The first dose made the patient so sick and faint that I could hardly induce her to repeat it; but although a second dose had a similar effect, the patient was freed from her asthmatic attacks completely, and had not had a recurrence when I last saw her, two or three years afterwards. Since then I have given it in from three to five grain doses, frequently repeated, and always with the greatest benefit. With regard to hyoscyamus in this affection, as well

as in other diseases, I find that the ordinary doses are of little benefit. Two drachms of the tincture or of the succus for a single dose should be prescribed, and not less than one drachm when frequently repeated. Besides having an influence over many spasmodic affections, it has a most tranquillising influence on the mind. Given alone in asthma it will not relieve the spasm, but in combination with the nitrite of sodium the improved condition of the patient is sometimes simply marvellous. (Dr. F. T. Pearse, Southsea, Lancet, Feb. 1, p. 240.)

BALSAM OF PERU IN DISEASES OF THE AIR PASSAGES.

Professor Schnitzler has tried Peruvian balsam in various affections of the larynx, trachea, bronchi, and lungs, as well as in those of the mouth, naso-pharyngeal cavity, and nose. The results were good in the vast majority of cases. The drug was used in the form of inhalation, and was also applied with the brush and with the spray-producer; it was likewise given internally. Finally, the most important constituent of the Peruvian balsam—namely, the cinnamellin—was also tried. Inhalations of the Peruvian balsam did not differ in effect from those of turpentine, and they were equally indicated in affections of the bronchi and lungs. Inhalations of the pulverised emulsion of Peruvian balsam, however, were, according to Schnitzler, very efficacious in many diseases of the larynx and the trachea. These were prescribed according to the following formulæ:—1. *R.* Bals. Peruv., 0.25 gramme; f. l. ad emuls., 250 to 500 grammes; chlorate of potassium, laurel water, āā 5 grammes; oil of peppermint, gutt. 5.—2. *R.* Bals. Peruv., 0.25 gramme; f. l. ad emuls., 250 to 500 grammes; cocain. muriat., 0.25 gramme; chlorate of potassium, 5 to 10 grammes; oil of peppermint, gutt. 5.—3. *R.* Bals. Peruv., 0.25 gramme; f. l. ad emuls., 250 to 500 grammes; benzoate of sodium, laurel water, āā 5 to 10 grammes; oil of peppermint, gutt. 5.—4. *R.* Bals. Peruv., 0.25 gramme; f. l. ad emuls., 250 to 500 grammes; cocain. muriatic., benzoate of sodium, laurel water, āā 5 to 10 grammes; oil of peppermint, gutt. 5; &c. *M. D. S.* For inhalation by means of the pulverising apparatus. These inhalations were particularly indicated in acute and chronic catarrhal inflammatory affections of the mucous membranes of the mouth, the pharynx, the larynx, and the trachea, the morbid process being not only rendered milder, but recovery being also greatly accelerated. Touching the question as to the penetration of pulverised medicaments into the air passages, which has recently been much discussed, Professor Schnitzler says that numerous experiments and observations have led him to the following conclusions: medicated pulverised liquids, which do not contain volatile resinous substances, for the greatest part become precipitated in the oral cavity, and only a small portion reaches the larynx, and still less passes through the rima glottidis into the trachea. As to the bronchi of the first order a part of the

inhaled substances penetrated into them only exceptionally ; those of the second and third order were hardly ever reached. It thus became evident that the inhalations of non-volatile astringent and resolvent medicaments were indicated only in affections of the upper air passages. The volatile resinous substances, however, which, at each inspiration, reached as far as the most delicate ramifications of the bronchi, were indicated in diseases of the deep air passages, and a combination of the medicaments as in the formulæ given above, could always be used. Peruvian balsam had the great advantage that its taste was not disagreeable, which was hardly the case with carbolic acid, creosote, and creolin. Professor Schnitzler also insufflated Peruvian balsam in the form of powder, or its most important constituent—namely, the cinnameinum or the cinnamylic acid, into the larynx. Some of the formulæ were:—1. *R. Bals. Peruv.*, 2 grammes; pulverised alum, lactate of sugar, $\bar{a}\bar{a}$ 10 grammes.—2. *R. Bals. Peruv.*, 2 grammes; subnitrate of bismuth, lactate of sugar, $\bar{a}\bar{a}$ 10 grammes.—3. *R. Acidi cinnamylici*, 0.2 gramme; pulverised alum, lactate of sugar, $\bar{a}\bar{a}$ 10 grammes; oil of peppermint, gutt. 10.—4. *R. Acidi cinnamyl*, 0.2 gramme; phosphate of lime, lactate of sugar, $\bar{a}\bar{a}$ 10 grammes; oil of peppermint, gutt. 5, &c. M.D.S. for insufflation. The insufflations proved particularly efficacious in catarrhal inflammatory processes and in superficial ulcers of the larynx. In the case of deep infiltrations, and especially in laryngeal phthisis, the diseased parts were energetically brushed with Peruvian balsam or cinnamein; on some occasions this was done after the tuberculous infiltrations and ulcers had been scraped with a sharp spoon, or the vegetations had been destroyed with the hot wire. As for the brushings, the following combinations were employed:—1. *R. Cocain, mur.*, 0.50 gramme; *bals. Peruv.*, alcohol, $\bar{a}\bar{a}$ 10 grammes; oil of peppermint, gutt. 5.—2. *R. Bals. Peruv.*, 15 grammes; oil of peppermint, collod. flex., absolute alcohol, $\bar{a}\bar{a}$ 5 grammes.—3. *R. Acid cinnamyl.*, 1 gramme; absolute alcohol, 5 grammes; pure glycerine, 15 grammes; oil of peppermint, gutt. 10. Peruvian balsam, in this respect, was more efficacious than most of the other common remedies; it combined in itself the antiseptic bactericide property with the mild irritative one which favourably influenced the formation of the cells, and thus not only checked the further progress of the morbid process, but also accelerated recovery. Internally, Peruvian balsam was first tried in the form of an emulsion according to the prescription of Bouchardat, and later on in the form of pills, gelatine capsules, and compressed pastilles. It was tried in cases of chronic pulmonary tuberculosis. For the pills the following formulæ was used:—*R. Bals. Peruv.*, 10 grammes; *ceræ flavæ*, pulv. *radicis althææ* $\bar{a}\bar{a}$ quantum sufficit. ut. f. pill. 100. D. S. From two to five pills morning and evening. For gelatine capsules:—*R. Bals. Peruv.*, 0.1 to 0.2 gramme; cod-liver oil, 1 to 2

grammes; exhibe in caps. gelat dent tales, 100. Or \mathcal{R} . Bals. Peruv., 0.1 to 0.2 gramme; lipanin, 1 to 2 grammes, &c.; dent tales, 100. D. S. From 2 to 5 pieces to be taken in the morning and the evening. For the pastilles: \mathcal{R} . Bals. Peruv., 2 grammes; phosphate of lime, bicarbonate of sodium, aa 10 grammes. F. pastill. compress. 20. D. S. From 2 to 5 pastilles in the morning and the evening. When the drug is given internally, and also after frequent inhalations, the urine should be carefully examined, as, according to Litten, nephritis occasionally occurs even after the external use of Peruvian balsam. (*British Medical Journal*, Nov. 2, p. 1012.)

CATARRH OF THE BURSA PHARYNGEA.

At the Leeds and West Riding Medico-Chirurgical Society, on Nov. 1, 1889, Dr. Adolf Bronner, of Bradford, read a paper on some cases of catarrh of the bursa pharyngea, a disease to which Dr. Tornwaldt first drew attention in 1885. Suchannek and others had proved that the pharyngeal bursa was not a congenital structure as Tornwaldt thought, but simply a result of pathological changes which had taken place in the fissure normally dividing the pharyngeal tonsil from before backwards. Attention was drawn to the important relation between catarrh of the bursa and diseases of the pharynx, nares, and middle ear. He described and showed the instruments used for the examination of the naso-pharynx and for the removal of the bursa. In most cases he used Trautmann's sharp spoon or a modification of Hartmann's curette, operating under cocaine without general anæsthesia. Several cases were recorded in full. In one the patient had suffered for some years from all the typical symptoms of post-nasal catarrh, in spite of many kinds of treatment. The pharyngeal tonsil was enlarged and partly covered with two yellow crusts. On removing these, two small apertures were visible in the middle line of the tonsil, and a probe revealed a cavity of 1 to 2 centimètres. The bursa was removed with the curette and the symptoms immediately disappeared. In another case a clergyman complained of recurrent hoarseness and sudden loss of voice, which had prevented him from preaching for some months. Here also a large cavity was found in the pharyngeal tonsil. After removal of the bursa with the sharp spoon complete recovery took place. Another case, a lady aged 30, showed all the symptoms of "aproxexia," as described by Guye. Removal of the bursa with the curette effected complete cure. A case of recurrent deafness of the left ear, with rhinitis, resisted all methods of treatment till the bursa was destroyed by chromic acid. (*British Medical Journal*, Nov. 16, p. 1103.) [See also p. 230 of this volume.]

COCILLANA IN DISEASES OF THE LUNGS.

In August, 1888, we published a paper by Dr. H. H. Rusby on the use of cocillana bark in catarrh. Dr. Rusby's results indicated that

the cocillana bark was a powerful emeto-cathartic and expectorant, very similar in its effects to ipecacuanha, and dangerous when taken in large doses. Dr. Rusby was, unfortunately, prevented from continuing his researches, but his work has led to the investigation of the properties of this plant by Dr. David H. Stewart, who has published his results in the *Philadelphia Medical News* for August 24, 1889. Dr. Stewart states that he has notes of forty cases in which cocillana was prescribed. These comprise ten of acute, one of subacute, and nineteen of chronic bronchitis, five of broncho-pneumonia, and five of phthisis. Of these cases, the shortest time that any were under treatment by cocillana was six days, and the longest twelve weeks. While he further adds, that in many of the cases other drugs had been unsuccessfully tried before cocillana was begun. In bronchitis, the results, indicated by the notes published, did not appear to have been very satisfactory, the drug appearing to have but little effect on the disease. In chronic bronchitis the results were more satisfactory, five cases being cured, while three were decidedly and two moderately benefited. All of the four cases of broncho-pneumonia were improved as regards cough and expectoration, while the only case of phthisis appeared to be uninfluenced by the use of cocillana. In all of the cases treated it was stated that where cough was not removed, it was lessened, while expectoration was either diminished in amount or frequency, while it is further stated that in cases where expectoration was difficult before cocillana was begun, it became less so under the use of this drug. In two cases slight temporary nausea was produced by the use of the drug, while in three of the twenty-one cases it was noted that the bowels were somewhat looser while cocillana was being taken. Dr. Stewart concludes, from analysis of his cases, that cocillana is servicable in bronchial catarrh, especially the subacute and chronic forms, when accompanied by scanty or moderately profuse secretion, whether the cough be tight or loose. It seems to possess the power to render cough less frequent and difficult, and the bronchial secretion less viscid and more easily expectorated, while at the same time it diminishes it in amount. Perhaps the best preparation of cocillana for administration is the fluid extract, because of the relative smallness of the dose; seven and one-half minims of it equal about half a fluidrachm of the concentrated tincture. The fluid extract is to be preferred to the tincture in cases of acute bronchitis, since the amount of alcohol contained in the latter is apt to aggravate the inflammatory condition. In cases of chronic bronchitis, broncho-pneumonitis, and the bronchitis intercurrent with phthisis, the tincture is not open to this objection. The dose of the concentrated tincture employed in most of the cases is somewhat too small, an average dose equalling about three-fourths to one fluidrachm. (*Therapeutic Gazette*, Nov., p. 762.)

CHRONIC TUBERCULAR PERITONITIS.—Abdominal Section.

Dr. Broadbent said he had had this operation done in several cases, but had not seen the successful results which had now so often been obtained. In all cases, however, the operation had been attended with decided relief, and in all but one he considered that the patient's life had been prolonged. Most of the cases had been such that there was no possibility of cure by any means. The general impression left on his mind from the effects of opening the abdomen in tubercular peritonitis was that tubercle was a very vulnerable organism if it could be got at, and that the reason why tubercular disease was not amenable to treatment was that the organism could not be reached by remedies introduced into the system by the mouth or by inhalation. He had tried and carefully watched the effects of so-called antiseptic treatment of phthisis, but beyond the improvement seen from other lines of treatment he had been unable to recognise any good results. If we brought to the observation of the effects of any treatment an expectant attitude of mind, there would always be sufficient improvement to permit of a favourable opinion being formed. (*British Medical Journal*, Dec. 14, p. 1318.)

EMPHYEMA FOLLOWING FIBRINOUS PNEUMONIA.

Penzolt, in *Deutsche Med. Zeitung*, remarks that purulent effusions following pneumonia are, on the whole, rare, although the author has seen seven cases in the course of three months. The incomplete fall of the temperature curve may indicate that everything is not right, but there is no characteristic sign pointing to a purulent condition, and consequently it is frequently overlooked. Hence it is advisable in all cases in which convalescence is protracted, and the lung dulness persists for a longer time than usual, to make an exploratory aspiration. This is particularly advisable in practice among children. If the usual antiseptic precautions are observed no harm can result, even if no fluid is present. (*N. Y. Med. Jour.*, Feb. 1.)

HÆMOPTYSIS.—Non-Tubercular and Non-Cardiac Hæmoptysis in Elderly Persons.

Sir Andrew Clark concludes an important communication on this subject with the following propositions:—1. That there occurs in elderly persons, free from ordinary diseases of the heart and lungs, a form of hæmoptysis arising out of minute structural alterations in the terminal bloodvessels of the lung. 2. That these vascular alterations occur in persons of the arthritic diathesis, resemble the vascular alterations found in osteo-arthritic articulations, and are themselves of an arthritic nature. 3. That although sometimes leading to a fatal issue, this variety of hæmoptysis usually subsides without the supervention of any coarse anatomical lesion of either the heart or the lungs. 4. That when present this variety of hemorrhage is aggravated or maintained by the frequent administration of large doses of strong astringents,

and by an unrestricted indulgence in liquids to allay the thirst which the astringents create. 5. That the treatment which appears at present to be the most successful in this variety of hæmoptysis consists in diet and quiet, in the restricted use of liquids, and the stilling of cough; in calomel and salines, in the use of alkalies, with iodide of potassium, and in frequently renewed counter-irritation. (Sir A. Clark, p. 203.)

HICCOUGH.—A Simple Remedy for.

After trying all the ordinary measures without avail, Dr. Loebel fell back upon a household remedy as a last resort, and ordered a teaspoonful of pulverized sugar wet with an equal volume of wine-vinegar, to be taken at one dose. The hiccough stopped immediately and did not return for six hours, and then ceased after a second dose of the remedy. (American Journal, Dec., p. 609.)

INTUBATION AND TRACHEOTOMY.

Intubation is steadily growing in favour in Germany, although the results there have not been as proportionately successful as in the United States; probably from lack of experience in the clinico-technical requirements. At a meeting of the Deutscher Naturforscher und Aerzte in Heidelberg, September 19, 1889 (*Münchener Med. Woch.*) Prof. Ranke reported that he had practised intubation in 65 (66?) cases. Of 50 children with primary diphtheria, 15 were saved, 30 per cent.; while of 16, in whom the diphtheria was secondary to other diseases, only one was saved. In two of the primary cases saved it became necessary to perform tracheotomy secondarily; and two died at a later date from pulmonary disease. He, therefore, considered the results as yet inferior to those from tracheotomy. Prof. Ganghofner's experience was similar. He had practised 41 intubations. In the greater number tracheotomy became necessary; in 4 of them immediately after the intubation. He had but four successes in contra-distinction to eight successes in 45 tracheotomies. (American Journal, Feb., p. 205.)

INTUBATION AND TRACHEOTOMY.

Mr. W. H. C. Staveley, house-surgeon to the Victoria Hospital for Children, speaking upon an experience of sixteen cases—seven recoveries and nine deaths—which had been intubated for diphtheria, says: In comparing tracheotomy with intubation, the following is a brief *résumé* of my experience as a house surgeon. With an O'Dwyer's tube, should there be any membrane or collection of mucus exciting cough, in a fairly vigorous child the tube acts as a moderately tight wad, offering just sufficient resistance that an energetic cough causes its immediate expulsion and with it any mucus or loose membrane that may lie below it. Complete relief, which, however, is of very variable duration, follows, due, I believe, to a temporary displacement of the œdema of the cords from the pressure exerted by the tube. A tracheotomy tube, on the other

hand, being tied in, no effort on the part of the child can expel it, and the removal of the inner tube is frequently quite insufficient to enable the child to rid itself of the cause of the obstruction, and it is imperative that a skilled nurse or medical officer shall be within call. The brief time required for the insertion of an O'Dwyer's tube, and no anæsthetic being needed, are points which have been fully dwelt on by others. I am also of opinion that the amount of practice required to intubate fairly rapidly cannot be compared with that required for tracheotomy. Against this, however, is the fact that two assistants are absolutely essential in intubation—one to hold the child and another to steady the head and control the gag. I do not think too much stress can be put on the importance of the patient's body as well as head being held fair and square before the operator, the head being neither fully extended, which causes the larynx to be so much less easy to reach, nor yet flexed on the sternum. And last, but not least, when dyspnoea imperatively demands relief, and the patient's friends are assured that the operation does not necessitate the use of the knife their consent is readily and usually cheerfully granted, whereas in tracheotomy consent is often withheld until recovery is at best extremely doubtful. (Lancet, Nov. 16, p. 995.)

MENTHOL.—Its Use in Acute Rhinitis, Influenza, and other Affections of the Nose and Throat.

Menthol exerts its action in the following manner:—1. It stimulates to contraction the capillary bloodvessels of the passages of the nose and throat, always dilated in the early stages of head cold and of influenza. 2. It arrests sneezing and rhinal flow. 3. It relieves, and indeed dissipates, pain and fulness of the head by its analgesic properties, so well known by its action when applied externally to the brow in cases of *tic douloureux*. 4. It is powerfully germicide and antiseptic. It thus kills the microbe of infection, and prevents its dissemination. The remedy may be employed by means of a general impregnation of its vapour through a room or house, or locally to the nostrils and air passages; for both which purposes there are several methods. (a) A 10 to 20 per cent. solution of menthol in almond oil, in liquid vaseline, or in one of the many other odourless paraffin compounds, can be sprayed into the nose or throat, or about a room. (b) By placing twenty or thirty grains in an apparatus specially designed by Rosenberg for administering the drug in cases of laryngeal consumption by inhalation; in the form of vapour mingled with steam. (c) By placing a similar amount or one to two drachms of the oily solution in a Lee's steam draft inhaler, or bronchitis kettle. (d) By a simple arrangement adopted by a gentleman with whom I am acquainted of placing a saucer of water containing a similar quantity of the crystals over a gas burner in the hall, by means of which the whole house is kept constantly permeated with the drug. Since the invasion of the

epidemic of influenza in this city I am having the out-patient department of the Central Throat and Ear Hospital disinfected in this way. (e) But by far the most convenient method for personal use is to carry always the ingenious pocket menthol inhaler known as Cushman's, which should be used not only on the first approach of an attack, but three or four times a day during an epidemic, and always in cold-catching weather by those subject to head colds. The instrument consists of a glass cylinder four inches in length, half an inch in diameter, and open at both ends. The tube contains crystals of menthol closely packed and prevented from escape by perforated zinc and cork. The opening at one end is twice the size of the other, the larger being intended for inhalation by the mouth the smaller for the nostril. The latter is the method which I by preference recommend. It is not to be simply smelt, but well sniffed or inhaled, so as to cause some tingling or smarting, a sensation which is quickly followed by that of coolness, and openness of the previously "stuffed" and heated nostril. (Mr. J. Lennox Browne, Medical Press and Circular, Jan. 8, p. 34.)

PLEURISY.—Dry Apical Pleurisy.

In the discussion on Chronic Tubercular Processes in Serous Membranes, Dr. Burney Yeo spoke of the occurrence of dry apical pleurisy, which he believed were not tubercular, but, in fact, rheumatic. Those cases presented many of the physical signs which were relied upon in the diagnosis of tubercular affections of the apex, but others were wanting; especially he referred to the absence of bacilli in the sputa and the absence of hectic fever. He had observed those cases some years before he realised their true nature; but of late years he had been struck by their association with other rheumatic affections, and as occurring in the rheumatic constitution. These cases also ran a different course from cases of tubercular apex affections. They recovered completely with appropriate treatment, and went often to swell the list of cases of cured phthisis. They were especially amenable to anti-rheumatic treatment. The symptoms frequently passed away with counter-irritations by blisterings or by iodine and the internal use of iodide of potassium. He called attention to the physiological and anatomical analogy between the serous and synovial membranes. He believed there was also a pathological analogy, and just as the synovial membranes were very prone to rheumatic affections, so were the serous membranes, and especially the apical portions of the pleura. (British Medical Journal, Dec. 14, p. 1318.)

PLEURITIC EFFUSIONS.—Sudden Death in.

L. Weill has collected twenty-seven cases of pleurisy in which death occurred suddenly, the patients apparently feeling quite well. In four of the cases no autopsy was made. In three of the cases an autopsy failed to reveal a sufficient lesion. Of the remaining cases

death was due to myocarditis in two of them, one of which was observed by the author himself and is given in detail. The author lays stress upon the microscopical examination of the heart in all cases of sudden death in pleurisy, as in many cases the heart shows no change microscopically. Death was due in nine cases to thrombosis or embolism of the right side of the heart. In six cases acute œdema of the lungs was the cause of death, pericarditis was the cause once, and perforation of the lung twice. Intermittent dyspnoea, especially if it occurs at night, and a tendency to syncope, should be looked upon as forerunners of a termination in sudden death. The author sums up as follows: 1. The chief lesions which may produce sudden death in pleurisy are thrombi and emboli of the heart and pulmonary artery, œdema of the lung of the sound side, and diseases of the heart muscle. 2. Functional and mechanical disturbances, such as severe syncope, displacement of the heart, and twisting of the vessels, also the hitherto hypothetical cerebral emboli, may be the causes of the sudden fatal termination in pleurisy. 3. Sudden death has been witnessed in the most varied forms of pleuritic effusions, in the acute and in the chronic forms, in left-sided or right-sided effusions, and when the fluid was increasing, remaining stationary, and decreasing in amount. Usually the effusion has been of a serous nature. 4. These cases often present certain symptoms, such as attacks of dyspnoea, premonitory syncope, irregular pulse, and deviation of the heart, but these symptoms may be absent. In general, a movement or exertion is the exciting cause. 5. Treatment is powerless if myocarditis or thrombosis is the cause. But in other cases preventive treatment may be of service, and the only means at our hand is thoracentesis, which should be performed in acute and chronic cases as soon as the foregoing symptoms of danger manifest themselves. (N. Y. Med. Journal, Feb. 1.)

POST-NASAL CATARRH.—A Wash for.

Powdered chloride of ammonium, 1 ounce ; common salt, 2 ounces. A teaspoonful of this in a tumbler of hot water is to be snuffed up the nose twice a day, particularly in those cases where there is deafness. (L'Union Medicale, Oct. 29, 1889.)

QUINSY.—Its Treatment by Antifebrin.

In the *Wiener Medizinische Blätter* for August 8, 1889, Dr. W. Sahli writes that on the second day of a violent attack of quinsy he took 7 grains of antifebrin, and within a quarter of an hour all headache and pain on swallowing or in mastication had completely disappeared. On the next day there was a slight return of pain, which was again almost immediately subdued by the repetition of the dose of antifebrin, and this treatment was continued on each reappearance of pain with the same results, until the disease had run its course. Dr. Sahli refers to twelve cases of quinsy in which 4 grains of antifebrin likewise produced satisfactory results. The same

effect was also observed by the writer in the relief of pain in angina of an epidemic of scarlet fever and diphtheria. It relieves pain in all movements of the throat, and, by rendering the operation painless, is a great assistance to gargling the throat, especially in children, while, of course, it also assists in the administration of food. Dr. Sahli does not, however, claim that antifebrin is a specific for angina or diphtheria, since the pathological processes are not influenced by its administration. He administers it shaken up in a little spirits and syrup. (*Therapeutic Gazette*, Nov., p. 758.)

SUBACUTE INDURATIVE PNEUMONIA.

At the Medical Society of London, on March 24, Dr. Percy Kidd read a paper on Subacute Indurative Pneumonia. The object of the paper was to consider the group of cases in which fibrous changes in the lung were the direct sequel of a more or less acute pneumonia. Two illustrative cases were described in which this sequence of events was beyond doubt. The onset of the disease was well defined and acute, but the constitutional disturbance was less severe and later in its developments than in the classical form of pneumonia. Pyrexia was moderate in degree and of irregular type. The sputum was not rusty or characteristic of pneumonia; in one case it became putrid towards the close. In each instance a fatal termination was reached within four months from the commencement of the illness. In one case death was due to cardiac failure; in the other it depended on septic broncho-pneumonia and nephritis. Post-mortem examination disclosed a lobar consolidation in each instance, with cavities of varying size and character, and an absence of any tubercular lesion. Microscopically the induration was found to be due to organisation of a fibrinous intra-alveolar exudation in the first case; in the second the connective tissue growth was interstitial. The conclusion was drawn that these cases represented a special variety of pneumonia distinct from the classical sthenic type, and it was suggested that this form of disease, to which attention had lately been directed by Heitler and others, was best described as "indurative pneumonia." (*Lancet*, March 29, p. 704.)

WHOOPIING COUGH.—Treatment by Resorcin.

Andeer (*Centralbl. Med. Wissensch*), having already published his favourable experience with resorcin in whooping-cough, adds other instances of the beneficial action of the drug in this disease. A girl of seven years had suffered for eight days from the catarrhal form of whooping-cough, with sleep greatly disturbed by frequent paroxysms. Change of house and of climate had been of no avail. She was then given a two per cent. aqueous solution of resorcin, of which a half-wineglassful was to be partly swallowed, partly used as a gargle, four times daily. On the second day of the treatment the number of the paroxysms diminished greatly, and the nights were scarcely disturbed at all; and in eight or ten days all cough

had disappeared. In two other cases, resorcin used in this way stopped the whooping-cough within four days, and in three others within a week. Finally, an infant, about six months old, in whom all the other methods of treatment which had been employed had proved useless, was given a 0·5 per cent. solution of resorcin, together with sugar; the child being made to suck it out of its bottle. Vomiting had been frequent, following every paroxysm of coughing, but ceased after the second administration of the remedy, and the cough, too, disappeared by the fifth day. (American Journal, Jan., p. 77.)

AFFECTIONS OF THE DIGESTIVE SYSTEM.

ACUTE GASTRIC CATARRH.—Treatment of.

In the treatment of acute catarrh of the stomach, Dr. Saundby, of Birmingham, advises, in addition to a restricted diet, one grain of calomel at bedtime, and before each meal a powder composed as follows: *R.* Bismuth carbonate, sodium bicarbonate, of each, 2 grains; powdered rhubarb, $\frac{1}{2}$ grain; aromatic powder, 1 grain. *M.* If pain is persistent a mustard plaster is to be used. If the patient is subject to recurring attacks, a broad flannel band should be worn around the abdomen. (Provincial Medical Journal, and Medical News, March 1, p. 231.)

APPENDICITIS.—Locality of Pain in.

Pain to a greater or less extent is present in all cases of appendicitis, but many a mistake has been made and a golden opportunity lost by looking for pain in the iliac fossa and an *absence* of pain in other parts of the abdomen. General abdominal pain is often all that the patient will complain of during the first few hours of his attack, and in many cases it requires a careful and pointed examination to determine that the cause of the pain is situated in the iliac fossa. But after the first few hours it becomes more and more evident that the chief seat of pain is at that point, and the general pain then usually subsides. The epigastric region is frequently the point first complained of. The *exact* locality of the greatest sensitiveness to pressure has seemed to me to be usually one of importance. Whatever may be the position of the healthy appendix as found in the dead-house—and I am well aware that its position when uninflamed varies greatly—I have found in all of my operations that it lay, either thickened, shortened, or adherent, very close to its point of attachment to the cæcum. This, of course, must, in early stages of the disease, determine the seat of greatest pain *on pressure*. And I believe that in every case the seat of greatest pain, determined by the pressure of one finger, has been very exactly between an inch and a half and two inches from the anterior spinous process of the ilium on a straight line drawn from

that process to the umbilicus. This may appear to be an affectation of accuracy, but, so far as my experience goes, the observation is correct. (Dr. Charles McBurney, p. 313.)

APPENDICITIS.—Treatment by Excision of Appendix.

Dr. Senn appends the following conclusions to a paper which is reproduced, in abbreviated form, at p. 318 of this volume: 1. All cases of catarrhal and ulcerative appendicitis should be treated by laparotomy and excision of the appendix as soon as the lesion can be recognised. 2. Excision of the appendix in cases of simple uncomplicated appendicitis is one of the easiest and safest of all intra-abdominal operations. 3. Excision of the appendix in cases of appendicitis before perforation has occurred is both a curative and prophylactic measure. 4. The most constant and reliable symptom indicating the existence of appendicitis are recurring pains and circumscribed tenderness in the region of the appendix. 5. All operations on the appendix should be done through a straight incision parallel to and directly over the cæcum. 6. The stump after excision of the appendix should be carefully disinfected, iodoformized, and covered with peritoneum by suturing the serous surface of the cæcum on each side over it with a number of Lembert stitches. 7. The abdominal incision should be closed by two rows of sutures, the first embracing the peritoneum, and the second the remaining structures of the margins of the wound. 8. Drainage in such cases is unnecessary and should be dispensed with. (Journal American Med. Association, Nov. 2, p. 635.)

CANCER OF GALL-BLADDER.—Its Relations to Gall-Stones.

Zenker (*Centralblatt für klinische Medicin*, Sept. 7, 1889) discusses the question as to the manner in which gall-stones can cause or predispose to the development of cancer of the gall-bladder, having regard to the earlier published cases, and eight cases from the Erlanger Pathological Institute. Clinical observations and anatomical considerations, in the majority of cases, favour the view that the calculi precede the cancer. With regard to the manner in which gall-stones may give rise to carcinoma, Zenker discusses the researches of Hauser on the development of cancer of the stomach from round ulcer. This is brought about by the transition of an abnormal adenomatous proliferation, irritated by cicatrization, into solid carcinomatous tissue. Zenker was able to show an analogous relation by the microscopical examination of a preparation of a cicatrix of the gall-bladder caused by cholelithiasis. Accompanying the cicatrization was an abnormal proliferation of the epithelial elements, which occurred, not merely in the gall-bladder, but also in the adherent transverse colon, cystic duct and liver substance. The transition from the abnormal gland proliferation into carcinomatous tissue is only gradual. The gall-stone leads to an ulceration and cicatrization in the gall-bladder; this to proliferation of

the mucous glands of the gall-bladder. The proliferation which forms the predisposing cause of the cancer, becomes excessive by chronic irritation. The preponderance of the epithelial elements in the histological equilibrium, as it asserts itself in old persons, forms the predisposing cause. The exciting cause is the repeated irritation of the gall-stones. Zenker is not, however, able to bring a direct microscopical proof of unequivocal cancer by the side of unequivocal scar caused by gall-stones. (Mr. R. T. Williamson, *Medical Chronicle*, Feb., p. 372.)

CHOLECYSTENTEROSTOMY.

At the Royal Medical and Chirurgical Society, on Nov. 20, 1889, Mr. A. W. Mayo Robson related the following case:—The patient, a married woman, had had abdominal section performed in April, 1887, for pelvic distress, on account of which she had been a confirmed invalid for several years. After the operation, in which a right pyosalpinx was removed, she had been able to resume her work, and had enjoyed excellent health. On January 9th, 1888, she was readmitted to the infirmary suffering from acute peritonitis, with a tumour in the region of the gall-bladder. On January 14th, laparotomy was performed through the upper part of the right linea semilunaris, and eight ounces of foetid pus removed from the gall-bladder. Exploration of the ducts by finger and probe failed to discover any gall-stones. The gall-bladder was stitched to the abdominal wound and drained, and the patient made a good recovery, with the exception of having a biliary fistula. Although she retained good health during the fifteen months when the fistula was open and discharging the whole of the bile, her condition was a very miserable one, since no apparatus could be satisfactorily made to catch the overflowing fluid when she was walking about, and her dressings and clothes soon became saturated. On March 2nd, 1889, cholecystenterostomy was performed by reopening the abdomen through the old cicatrix in the right linea semilunaris. The viscera in the neighbourhood were found to be so matted together that it seemed to be impossible to fix the gall-bladder to the duodenum, and as the hepatic flexure of the colon was conveniently near, the gall-bladder was fixed to it by a double row of chromicised catgut sutures, a free communication being made between the two viscera, and the outer opening (the old fistula) of the gall-bladder was stitched up. In order to guard against accident a glass drainage tube was placed in the right kidney pouch, and brought out at the lower end of the wound. The outer surface of the gall-bladder evidently gave way to some extent, for bile appeared through the drainage tube within a few days of the operation, followed shortly by a fæcal discharge. The wound granulated, and, after a few weeks, completely healed, the motions towards the end becoming more and more bile-stained, until they became quite normal. The author believed the operation was first

proposed by Nussbaum, who suggested its use in cases of irremediable obstruction in the common duct. He believed that the operation had only been done once successfully before the present case, and that by Kappeler, in a woman aged 51. He thought that it had never been previously performed for the cure of a biliary fistula. Since writing his paper the author had had a communication from M. Terrier, of Paris, saying that he had performed the operation successfully in a case of irremediable obstruction of the duct, and another case had also been reported from America. (British Medical Journal, Nov. 30, p. 1218.)

CHOLECYSTOTOMY.

At the Clinical Society, on Oct. 25th, Mr. Mayo Robson (Leeds) communicated a paper on fourteen cases of cholecystotomy which he had performed, eleven being for gall-stones, one for empyema of the gall-bladder, and two for distended gall-bladder, due in the one case to cancer of the head of the pancreas, in the other to cancer of the bile duct. All the patients operated on for gall-stones had recovered. Of the other cases, the patient suffering from empyema of the gall-bladder was operated on when apparently dying from acute peritonitis, but after the operation she made a good recovery except for a biliary fistula, which was afterwards closed by cholecystenterostomy. The case of cancer of the pancreas had succumbed on the eighth day to a constant oozing of blood from the interior of the gall-bladder and from the suture punctures. It commenced on the day following the operation, and was apparently due to the altered condition of the blood brought on by persistent jaundice of several months' duration. In the case of cancer of the bile duct, although there was intense jaundice, there was no subsequent bleeding or other complication; this might possibly be due to the arrest of hemorrhage at the time of operation by ligatures instead of by forcipressure. Of the cases operated on for gall-stones, six patients had sought advice in consequence of the presence of a tumour combined with the usual symptoms. In these cases, Mr. Robson pointed out that the operation was usually much simpler than in the other group where no tumour could be felt, although in one, where an apparently solid tumour was exposed which was due to the matting of the viscera surrounding the gall-bladder, so that the mass appeared at first to be a malignant growth, it was found impossible to shut off the general peritoneal cavity by suturing the parietal peritoneum to the gall-bladder, as it (the gall-bladder) was practically destroyed by suppuration, and drainage with sponge-packing had to be resorted to to prevent general peritoneal infection. Dr. Churton had pointed out to Mr. Robson that he had previously seen in the post-mortem rooms a similar condition of affairs, where suppuration of the gall-bladder had led to the formation of a tumour resembling a malignant growth, but where an exploring needle pushed through the over-

lapping edge of the liver had revealed the presence of pus. Of the cases, five in number, operated on, on the strength of symptoms alone, Mr. Robson remarked that he believed many such cases of frequently recurring biliary colic would in future be saved the intense suffering and the many dangers of their disease by timely operation. He pointed out that these operations were not always easy, as the gall-bladder was frequently very small, and could with difficulty be brought to the surface; in fact, in his fourteenth case, the gall-bladder was shrunk to the size of the last joint of the thumb, and was lying very deeply under cover of the liver, so that when he had incised it and removed several gall-stones from the duct, the lower part of the opening could not be made to reach the parietal peritoneum, and a piece of omentum was brought up and sutured on the one hand to the gall-bladder, and on the other to the parietal peritoneum, thus shutting out the general peritoneal cavity. Mr. Robson thought that omentum grafting, first proposed by Dr. Senn for enterorrhaphy, but he thought not hitherto performed to surmount a difficulty of that kind above related, would in future often be found very useful in abdominal surgery, and perhaps especially in such cases as he had mentioned. With regard to the danger of biliary fistula, Mr. Lawson Tait had remarked that "biliary fistula after cholecystotomy could only be permanent when the operation happened to be performed at a time when a gall-stone was impacted in the common duct;" the author of the paper said that he believed this to be true generally, as proved by Mr. Lawson Tait's cases; but in the only case of biliary fistula, No. 3 in his list, which had followed the operation in his own hands, the cause was other than gall-stones, as when he had performed the operation for the closure of the fistula he had very carefully examined the whole length of the common duct, without finding an obstructing calculus. In conclusion, he remarked that he believed that with due care cholecystotomy, in the absence of malignant disease, was a procedure attended with comparatively little danger, and that the great relief which the operation conferred amply compensated for the attendant risks. (*British Medical Journal*, Nov. 2, p. 982.)

CHYLOUS AND OILY ASCITES.

At the Annual Meeting of the Association of American Physicians in September, 1889, Dr. Samuel C. Busey, of Washington, D. C., read a tabulated statement arranged chronologically, presenting a condensed summary of the reports of cases of Chylous and Oily Ascites. The number of cases reported was thirty-three; primary rupture occurred in but five cases. Chylous ascites may be the secondary result of a variety of morbid conditions which directly or remotely obstruct the flow of the chyle through the lacteals, receptaculum, or thoracic duct, impede its exit into the left subclavian vein, or retard the current of blood in the left subclavian

vein, right side of the heart, or lesser circulation. The relation of puerperal conditions to the effusion of chyle are not susceptible of explanation. In five cases the fluid found in the peritoneal cavity was associated with tuberculosis, and in four it is stated that the peritoneum was more or less studded with tubercle. No perforation or rupture of chyle-conveying vessels was found in any of these cases. The symptomatology of effusion of chyle into the peritoneal cavity is not sufficiently distinctive to differentiate such cases from ordinary ascites, and a diagnosis is only possible after examination of the evacuated fluid. Of the thirty-three cases, nineteen died, nine recovered, and in five the result is not stated. Of the twenty-two cases of chylous ascites proper, twelve died, five recovered, and in five the result is not stated. Meagre and unsatisfactory as are the clinical details of these cases, they point to two conclusions: first, that a free and unobstructed channel of communication between the venous system and the chyle-conveying vessels is essential to the proper nutrition of the body and preservation of life; and second, that death following the partial or complete obliteration of this communication is the result of inanition. In seventeen of the thirty-three tabulated cases, tapping was practised, and, in most of the cases, repeated several times. Six of these recovered. In two laparotomy was resorted to, with recovery of both patients. One was a case of intact retention cyst, and the other was probably a ruptured cyst. As a medical resource, paracentesis is of questionable value. The treatment is mainly directed to the prolongation of life. The causative condition may in some cases be amenable to medicinal treatment, but in most cases some surgical procedure might offer a prospect of cure. In filarial cases the treatment applicable to such would be admissible. Sonsina thinks that astringents, such as gallic acid and tincture of the chloride of iron, with rest, tonics, and proper alimentation, are useful. Lancereaux thinks that the parasitic forms of lymphatic diseases are curable. He has found mercurial inunction in the region of the affected gland, in connection with hydropathy, of service. He suggests the injection of parasiticides into the affected glands for the purpose of destroying the female adult worm. (N.Y. Medical Record, Sept. 28, p. 351.)

CHYLOUS CYST OF THE MESENTERY.

At the Obstetrical Society's meeting on Nov. 6th, the following case of Large Chylous Cyst of the Mesentery was read by Dr. Rasch. An anæmic girl, aged 21, was admitted into the Deaconesses' Hospital at Tottenham on February 9th, 1889. About a month before admission she lifted a heavy trunk; a week later she was seized with severe abdominal pain. A large, roundish, elastic swelling occupied the middle of the abdomen, extending mostly to the left. Its upper extremity reached two inches above the umbilical level. The pelvic organs were normal. At the operation, on March 22nd, a

glossy, pale pink tumour was discovered. A milk-white fluid exuded on tapping. On exploration it became evident that what appeared to be a cystic tumour were the two layers of the mesentery, separated from each other by a collection of milky fluid. The inside of the cyst was intensely congested, and oozed freely. The cyst cavity was sponged clean, and, like the peritoneal cavity, washed out with warm boracic lotion. The cut edges of the cyst were sewn to the abdominal wound, and the cavity packed with iodoform gauze. The whole was covered with sublimate gauze after dusting with iodoform. Six pints of the cyst contents were collected. Next day the fluid (at first white) became pink, and contained a firm, pinkish clot. The microscope and chemical examination appeared to prove that the fluid was chyle. No epithelial lining could be found on a small piece of the cyst wall, which had been cut away for examination. The patient made a fair recovery; the milk-white fluid oozed for some time from the cyst cavity, which at length closed up. During the drainage she lost weight considerably, and regained weight as the escape of fluid lessened. Dr. Rasch believed that this was the first recorded case of a chyle cyst of the mesentery occurring in a woman. Winiwarter had recorded a chyle cyst in the right hypochondrium of an infant. Dr. Kilian operated on a large retroperitoneal lymph cyst. Dr. Rasch did not think that in his case the cyst arose from obstruction of the thoracic or other lymphatic duct, but more probably from the rupture of a mesenteric lymphatic during exertion. Dr. Rasch then spoke of the difficulty of diagnosis. Mesenteric tumours generally appeared first in the middle line near the umbilicus, and had free transverse, but little vertical, mobility. Professor Bergmann's case of chyle cyst of the mesentery occurred in a man aged 63. Dr. Rasch lastly justified his treatment as preferable to extirpation of the cyst or closure, after emptying of the contents, without drainage. (*British Medical Journal*, Nov. 16, p. 1099.)

DYSPEPSIA.—Abdominal Compression in.

Wettendorfer, in the *Deutsche med. Wochenschrift*, speaks highly of the treatment of dyspepsia, flatulency, torpid digestion, &c., by the application of abdominal compression, in the shape of an elastic bandage about twelve inches wide. Wettendorfer struck upon the plan merely by accident. While treating a patient for chronic eczema of the trunk with a Martin's rubber bandage, he observed a rapid and complete disappearance of all symptoms of indigestion, from which the patient had been a great sufferer. Since then the treatment has been used in a large number of cases of dyspepsia and flatulency with great success. (*Medical News*, Oct. 5, p. 376.)

HEPATIC ABSCESS.

Mr. Rickman J. Godlee appends the following conclusions to a series of three lectures on the Surgical Aspects of Hepatic

Abscess. 1. Pyæmic abscesses do not call for surgical interference, or, if in rare cases one should point, it is only opened to relieve symptoms, but without hope of doing permanent good. 2. The same observations apply to abscesses resulting from suppurative phlebitis of the portal vein. 3. Multiple abscesses associated with dysentery or ulceration of the bowels are very unfavourable for surgical treatment. They must, however, be opened and treated on the same lines as the single or tropical abscess, because they cannot be certainly diagnosed. 4. Single abscess of the liver, whether tropical or not, must, if it approach the surface, be opened, the following precautions being adopted: (a) If it present at the epigastrium, the presence of adhesions must be ascertained before incising the liver. (b) If through the chest wall, a spot must be chosen below the normal limit of the pleura; but, if by chance either pleura or peritoneum be opened, the opening must be closed with a double row of stitches before incising the liver. (c) Strict antiseptic precautions must be throughout adopted, either carbolic acid or some slightly soluble salt of mercury being employed for the dressings. (d) The tube must be of large size at first, and a tube of some sort must be kept in until the discharge is reduced to a very minute quantity. If the abscess have burst into the lung, pleura, pericardium, peritoneum, or kidney, and the position of the abscess can be clearly determined, it must be opened without delay. If the position of an abscess be only suspected and the patient be losing ground, it is right to puncture the liver in the most likely situations, bearing in mind that, though usually quite harmless, a slight amount of risk accompanies this very trivial operation. This rule applies to cases in which the abscess has ruptured into any of the cavities enumerated above. If, on the other hand, whether the abscess have ruptured or not, there are no means of diagnosing the whereabouts of the matter, and the patient be not losing or even gaining ground, the surgeon should hold his hand for a time. 5. Hydatids of the upper and back part of the liver are to be treated upon the same lines; but in cases of this sort, and in those of subdiaphragmatic abscess, it must be remembered that the diaphragm may be pushed up to a very great height, thus closely simulating intrapleural suppuration. 6. Empyema, pericarditis, and peritonitis caused by rupture of a hepatic abscess or hydatid must be promptly dealt with on general principles. (British Medical Journal, Jan. 25, 1890, p. 175.)

HEPATIC CIRRHOSIS.—Calomel as a Diuretic in.

Heinrich Kohn reports a case of this affection, which is of interest as an aid in determining the exact value of calomel as a diuretic. The patient had been treated with various diuretics without notable effect, and eventually needed aspiration, but was unwilling to undergo it. The administration of 0.2 gramme of calomel three

times a day was then commenced, guarded by opium, and with the simultaneous employment of a mouth-wash of chlorate of potash. Under this treatment, continued for three days, there developed great weakness and exhaustion which necessitated its discontinuance. In the meantime, however, there had been a very marked diuresis, and the ascites was almost entirely removed. (*American Journal*, Oct., p. 406.)

INGUINAL COLOTOMY.—Improvement in the Technique of.

In the last few inguinal operations I have performed, I have adopted the following plan: The incision is that of Cripps—across a line from the anterior-superior spinous process to the umbilicus. After getting the sigmoid flexure outside the body, a hair-lip pin is passed under it in the following manner: It is entered through the skin on the side of the wound toward the median line, and at the junction of the lower with the middle third of the incision. It perforates first the skin, next the parietal peritoneum, next the mesentery of the gut close to the bowel, and at the junction of the lower and middle thirds of the exposed loop, next the parietal peritoneum on the other side of the incision, and finally, the skin. By this means the gut is so firmly held in position that it cannot be dislodged by any vomiting, and a perfectly satisfactory spur is formed, which will prevent any passing of fæcal matter beyond the opening. After this procedure I have never been troubled either by prolapsus of the mucous membrane, or the passage of fæces from the colon into the rectum. With this modification I now adopt a running suture instead of about fourteen interrupted ones, to join the parietal peritoneum to the visceral layer, and to the skin. A rapid operator can easily, in this manner, complete the entire technique of inguinal colotomy in ten minutes, and to this extent reduce the necessary shock. (Dr. Charles B. Kelsey, *New York Medical Record*, Oct. 12, p. 398.)

INGUINAL HERNIA.—Halstead's Operation for.

Dr. W. S. Halstead exhibited, at a meeting of the Johns Hopkins Hospital Medical Society, Baltimore, in October, five patients upon whom he had performed his operation for the cure of inguinal hernia. In operating, the incision is commenced at the external abdominal ring, ending one inch or less to the inner side of the anterior superior spine of the ilium on an imaginary line connecting the anterior superior spines of the ilia. Every structure superficial to the peritoneum is divided throughout the whole length of the incision. The vas deferens and its vessels are isolated up to the outer termination of the incision, and held aside. The sac is then opened and dissected from the tissues which envelop it. The abdominal cavity is closed by quilled sutures passed through the peritoneum at a level higher, by about two inches, than the neck of the sac. The vas is then transplanted to the upper outer angle of the

wound. Strong silk sutures are passed through all the layers on each side of the wound beneath the skin, and tied; the cord then lies superficial to these sutures and emerges through the abdominal muscles about one inch to the inner side of the anterior spine of the ilium. The skin is closed after a manner practised by Dr. Halstead on all skin wounds. Interrupted sutures of very fine silk are passed through the under side so as to include only its deep layers, not occupied by the sebaceous follicles. The sutures do not perforate the skin, and when tied become buried. One or two small, short, gauze plugs are used as drains to the wound, and are removed about the seventh day, when the wound is dressed for the first time. The patients are allowed to walk about on the twenty-first day. (British Medical Journal, March 1, p. 495.)

JAUNDICE.—Use of Pilocarpine in.

Witkowski considers pilocarpine as almost a specific in the treatment of jaundice. Two years ago, he writes (*Bulletin Général de Thérapeutique*) that he had under his care a patient affected with nephritis, complicated with biliary calculi, enlargement of the liver, jaundice, ascites, and dropsy of the legs. This patient was 45 years of age, and seven years previously, during the progress of a pregnancy, she commenced to suffer from pains in the right side, which greatly increased after delivery, and were accompanied by the development of jaundice. Treatment by Carlsbad waters produced somewhat of an improvement, but the jaundice as well as the hepatic colic returned regularly at each menstrual period. This condition continued to increase in severity for a period of four years, and when she first came under the care of the author her condition was extremely serious. Two injections of pilocarpine (half a syringe of a two per cent. solution) produced notable relief. Hepatic colic disappeared completely, even although morphine had previously proved inefficacious and the liver became less painful to pressure. Under the influence of injections of $\frac{1}{6}$ of a grain of pilocarpine, administered once or twice daily for three weeks, the jaundice, as well as the hepatic pain and the enlargement of the liver completely disappeared. For three years the patient remained perfectly well, and the author states that he has treated thirty analogous cases in a similar manner, in every instance with the most satisfactory results. He notes, however, that the treatment was inefficacious in cases of jaundice resulting from tumours of the liver, and he makes the statement that when in doubtful cases if pilocarpine, employed from ten to sixteen days, does not cause the disappearance of jaundice, the conclusion may be positively formed that the case is one of a malignant nature. He, therefore, recommends the use of pilocarpine in all cases of jaundice, provided the condition of the heart will permit. (Therapeutic Gazette, Jan., p. 46.)

SUPPURATIVE TYPHLITIS.—Operative Treatment.

1. The operation should not be performed until all inflammatory and other symptoms have quite subsided. 2. The incision should be made obliquely from above downwards and inwards over the cæcal region, its lower extremity ending just external to the epigastric artery. The incision should not be made directly over the appendix or over the dullest region. If it be so placed a number of adhesions will probably be encountered, and the demonstration of the peritoneal cavity might be difficult. The cæcum or the appendix might be actually adherent to the anterior abdominal wall. The incising of the peritoneum should, therefore, be conducted with the very greatest care. It is well that the parietal cut should open the abdomen at a point just beyond the diseased area, and where no adhesions exist. 3. When the appendix and cæcum are exposed, the area of the operation should be cut off from the general abdominal cavity by sponges. If this plugging with sponges be well carried out, no blood should enter the peritoneal space. 4. All adhesions should be divided by cutting; none should be "broken down." The latter measure is apt to tear the bowel, or, at least, to bare it of peritoneum. 5. The appendix should be lightly clamped close to the cæcum, and should be divided about half an inch from that intestine; it should not be secured by a simple ligature. The mucous membrane should be united by many fine sutures, or by a continuous suture; then the divided outer walls of the process should be brought together by a second row of sutures; it is practically impossible to bring the serous coats together. To still further secure the orifice, the stump of the appendix might be lightly attached to any adjacent surface of peritoneum. 6. The abdominal wound should be closed; no drain is required. During the progress of the operation, any adhesions likely to give rise to trouble might be dealt with; this more especially applies to adherent omentum, or to adhesions binding down coils of small intestine. If the appendix be closely adherent to the ureter, or to a coil of the ileum, or be found deeply attached in the pelvis, its removal may be attended with very considerable difficulties. The management of such a case must be left to the judgment of the individual surgeon. (Mr. F. Treves, *British Medical Journal*, Nov. 9, p. 1033.)

[See also articles by Mr. Treves on the Nature and Varieties of Typhlitis at page 291, and on the Clinical Manifestations of Typhlitis, page 294 of this volume of the *Retrospect*.]

TUBERCULOSIS OF PERITONEUM.—Surgical Treatment.

F. Spaeth (*Deutsche med. Wochenschrift*) has collected sixty-four of these cases in which laparotomy was performed, from the analysis of which he arrives at the following conclusions: 1. In primary tuberculosis of the peritoneum, where none of the viscera are

involved, laparotomy is a curative measure. 2. When the pelvic organs are also affected operative interference has not resulted favourably, whether the diseased organs were removed or not. 3. If the disease originates in the intestine operative treatment is simply palliative. 4. When the genital tract is primarily affected the operation should be performed as early as possible. We are rarely able to make a bacteriological diagnosis in these cases. 5. Primary bacillary tuberculosis of the peritoneum is much less frequent than has hitherto been supposed, hence the diagnosis must always be received with caution. (*American Journal of Medical Science*, Nov., p. 545.)

VOLVULUS.—Surgical Treatment of.

Professor Senn appends the following conclusions to an exhaustive paper on the Surgical Treatment of Volvulus (given at page 303 of this volume:)—1. The predisposing causes of volvulus are either congenital or acquired, and consist in elongation of certain segments of the intestine, abnormal length of mesentery, and adhesions. 2. Irregular distribution of intestinal contents and violent peristalsis are the most important exciting causes. 3. Volvulus is most frequently met at the sigmoid flexure and the lower portion of the ileum. 4. Secondary volvulus on the proximal side of other forms of intestinal obstruction is not a rare occurrence; it is also frequently developed during an attack of peritonitis. 5. As a rule, the symptoms are more acute and intense if the volvulus is located above the ileo-cæcal region. 6. Vomiting in cases of volvulus of the sigmoid flexure is not a constant symptom. 7. The most important physical sign of volvulus is a circumscribed area of tympanites which corresponds to the location of the volvulus, but this sign is only of value before general tympanites has set in, and, therefore, enables the surgeon in many cases to make an early and positive diagnosis. 8. All cases of volvulus should be treated by laparotomy if reposition cannot be accomplished by rectal insufflation of hydrogen gas. 9. Reposition should not be attempted without evisceration. 10. Evacuation of intestinal contents by a free incision should be practised in every case where general distention of the intestines is present. 11. Enterectomy becomes necessary if any considerable portion of the intestinal wall has become gangrenous. 12. Irreducible volvulus should be treated by establishing intestinal anastomosis with permanent exclusion of the seat of obstruction from the active fæcal circulation. 13. Recurrence of volvulus can and should be guarded against by shortening the mesentery by folding it upon itself parallel to the long axis of the bowel and suturing the apex of the fold to the root of the mesentery. (*Philadelphia Medical News*, Nov. 30, p. 598.)

[See also a paper by Dr. Senn on the Symptoms, Diagnosis, and Course of Volvulus, at page 301 of this volume of the *Retrospect*.]

AFFECTIONS OF URINARY AND GENERATIVE SYSTEMS.

ADDISON'S DISEASE IN A DIABETIC PATIENT.

At the Pathological Society, on Nov. 5th, 1889, Dr. Samuel West read the notes of a case of diabetes mellitus which occurred in a patient, aged 49, affected with Addison's disease. The urine contained 2.5 per cent. of sugar, had a specific gravity of 1034, and contained a trace of albumen. The liver was enlarged and tender, and there was a little dulness at the base of each lung. The skin was discoloured, of a greyish cyanotic hue. After admission to hospital the patient had dysuria, which was due to cystitis, and caused a temporary rise in the temperature. Careful diet was prescribed, with pilocarpine and a small quantity of opium occasionally. This caused a considerable diminution in the quantity of sugar in the urine. A month after admission an attack of subacute rheumatism developed, the temperature rose to 105° F., troublesome vomiting set in, and the patient died. The supra-renal capsules were found at the necropsy to be embedded in dense fibrous tissue, by which then were bound to the kidney on each side, and to the other parts in the neighbourhood. On microscopical examination they showed no trace whatever of supra-renal structure; nothing but connective tissue, richly supplied with blood vessels, remained. He regarded the association of diabetes with Addison's disease as nothing more than an accidental coincidence. Dr. West also showed a second case of a supra-renal capsule with a large central cavity resembling a cyst, probably due to post-mortem decomposition, taken from the body of a Spanish woman who had died of phthisis. The organs presented no abnormal external appearance, and the hollow in the interior contained no fluid. The microscopical appearances and pigmentation of the skin were normal. (*British Medical Journal*, Nov. 9, p. 1038.)

ALBUMINURIA.—Analysis of 272 Cases.

At the Harveian Society, on Feb. 6, 1890, Dr. Goodhart read a paper on albuminuria; a digest of peripatetic cases, 1879-1889. His observations were derived from an analysis of 272 cases which had come under his notice during that period. Dr. Goodhart called especial attention to a form of congestive albuminuria, in which the patient complained of a certain amount of ill health, whilst on inquiry it was found that he ate and drank too much, took no exercise, and probably had gouty antecedents. In such cases the urine was of high specific gravity, and contained only a small amount of albumen. The treatment consisted in the periodical administration of purgatives, and in making the patient live according to the ordinary laws of health. When this change of habit could be effected the albumen soon disappeared from the urine. These cases were clearly not due to nephritis, and it was in describ-

ing their pathology that the term "congestive" was of service. The temporary presence of albumen could sometimes be explained by the fact that in females the urine had become mixed with leucorrhœal discharge, whilst in the male the seminal and prostatic secretions might produce a similar result. Dr. Goodhart also maintained that intermittent albuminuria often occurred in highly neurotic persons, and to prove this point he quoted several cases which had come under his notice. In such instances the occurrence of albuminuria might perhaps be explained by assuming that there had been oxaluria or some temporary disturbance of the digestive functions. In other cases, where albumen appeared in the urine after scarlatina and was therefore presumably due to nephritis, the patient might remain in good health. Dr. Goodhart believed that this phenomenon might be explained by supposing that each organ in most individuals was endowed with a margin of working power which could be temporarily encroached upon without bad results. Acute nephritis might run its course without any dropsy, and it was then very liable to be overlooked unless the urine were examined. Dr. Goodhart related two such cases occurring in children, who were first cousins to each other. In both instances the skin was remarkably dry and shrivelled, and there was an unquenchable thirst. In one of the cases a necropsy was obtained, when it was found that the kidneys were small, with adherent capsules; their surfaces were pale and speckled, and the cortex was much diminished in amount. Microscopically the Malpighian tufts were found to be undergoing hyaline degeneration. On the other hand, Dr. Goodhart had seen cases of chronic parenchymatous nephritis associated with dropsy lasting for some months, the patients recovering completely, even when their cases had appeared almost hopeless. Albuminuria might alternate with the elimination of uric acid or of sugar by the kidneys. In such cases it appeared as if there were a sudden unlocking of abnormal metabolic processes, but it was, perhaps, more correct to say that there were oscillations in pathological processes and formations just as there were in the natural processes or in the normal body heat. In cases of albuminuria, Dr. Goodhart laid down the following as good rules for practice: "If a patient presents himself, and albumen is found in his urine, it is a case for further examination; if it be in a young person, and the examination be conducted upon the urine of the early morning, the albumen will probably have disappeared at the next examination, or within a very short time, and it is a condition of no importance. If the albumen is in any quantity, and its presence is persistent or reappearance frequent, it must be regarded, to use Dr. Gairdner's apt expression, as a danger signal to be watched, and personally I believe that some of the cases, at any rate, are due to patches of inflammation irregularly distributed in the kidneys." Dr. Goodhart believes that nitric acid is the best test for albumen

in the urine. He had of late years discarded picric acid on account of the frequency which this reagent caused a difficulty when quinine had been administered. Picric acid, however, undoubtedly made the greatest show when only a trace of albumen was present. (*British Medical Journal*, Feb. 15, p. 362.)

CALCULUS IN THE BLADDER.—An Analysis of 964 Cases of Operation for Calculus.

At the Royal Medical and Chirurgical Society on March 11, 1890, Sir Henry Thompson communicated a paper containing an analysis of 964 cases of operation for calculus in the bladder by lithotomy and lithotrity, with remarks. The calculi removed were exhibited to the Society. The paper commenced by referring to the author's first record of 500 cases of operation for stone in the bladder in the adult male presented to the Royal Medical and Chirurgical Society in 1878 (*vide Transactions*, vol. lxi., p. 159). He now brought forward an additional series of 464 cases, making a total of 964, including cases of women and children. Of these, 101 cases occurred in hospital practice (University College) and 863 were treated in private. Besides these were a few cases of foreign bodies, &c., removed by operation. The total number of children was 17, of women 14, leaving the number of operations on the adult male by all methods 933. A brief account of the progress of lithotrity, from the author's earliest case (1854) until the present time, and the influence of it on his practice, was given, commencing with the method of Civiale at that time, the introduction of the aspirator for débris by Clover in 1865, and the gradually increased use of it during the next twelve years. Then followed the introduction (1878) of the great and important principle by Professor Bigelow of employing one sitting instead of several, and removing the whole of the débris at the same time, which the author at once adopted. The results of this practice were shown, on comparing his own 325 cases of the operation by a single sitting with the 475 by multiple sittings, prior to the date named, to have reduced the mortality nearly one half. The first remarkable fact obtained by analysis of the entire series was the following—namely, that stone in the bladder was not more common in children than in adult patients, as formerly supposed, due to the experience of the malady met with in hospital practice. Probably it might be so among the poorer class of the population; but it was far otherwise among those whose circumstances permitted a dietary unlimited in kind and quantity, as regards both food and drink. The following table afforded warrant for this assertion.

Ages of male patients in private practice only.

Below 16 years.	16 to 24 years.	25 to 50 years.	51 to 70 years.	Above 70 years.	Total.
3	8	89	565	184	849

The mean age of the entire adult male cases was about sixty-two years and a half. The greatest age at which an operation had been performed was ninety-one years (lithotrity). The largest calculus was of uric acid, weighing fourteen ounces. The next important observation affirmed the value of the principle, long ago insisted upon by the author, of finding the calculus at the earliest date possible for the elderly adult male, in whom it so frequently occurred. Two cogent reasons existed for this: first, the stone when small was easily removed, and very little risk attended the operation; secondly, at this stage of calculus production the re-formation of an acid calculus (uric or oxalic) could almost invariably be prevented by strict dietetic precautions. A strong array of evidence was adduced in support of the foregoing. Another topic treated at length related to the choice of operation, whether by knife or by lithotrite. In the entire adult series of 933 cases 800 were by lithotrity, 115 by perineal lithotomy, and 18 by supra-pubic lithotomy. The last important subject related to the nature and causes of fatal issue following operation, and these were given in a tabular form under ten separate heads. A brief section closed the report, pointing out the most unusual cases met with, such as exfoliations of bone from the hip into the bladder as a nucleus of stone, &c. Examples of encysted calculus of remarkable size and structure, besides curious foreign bodies introduced by accident or design, were related. (*Lancet*, March 15, p. 599.)

CATHETER FEVER.—Prevention of.

As a practical observer, the theory of the etiology of this fever which I have formulated in my own mind, and which has sufficiently practical results, is that it is a nervous fever, due entirely to urethral shock, communicated through the large nervous connection which we know exists between the urethra and kidneys, to the excretory apparatus of the kidneys, and producing all degrees of suppression of urine from the most transient to the most complete. I am satisfied that it is not due to the absorption of urine through the urethral wound, for the passage of a fine bougie through the stricture is often followed by high fever, when a free division of the fibres of the stricture by the knife is followed by little or no elevation of temperature; and I am not convinced that it is septicæmic in its origin, because it may come on directly an instrument is passed; while, on the other hand, patients live for many years and are well and hearty, whose bladders are constantly full of foetid urine. Such a theory as is here propounded results in practical attention to the reduction of urethral shock by (1) great care and gentleness in instrumentation, and (2) the administration of certain drugs. The drug of first importance appears to me to be opium with its derivatives, morphine, codeine, and nepenthé. I have often found in practice that the passage of a catheter is followed by high fever, when in the same individual, and with the

same instrument, no fever follows, if before instrumentation a small dose of morphine has been administered. If opium and its preparations are not well borne, then small doses of chloral hydrate may be employed. (Mr. G. Buckston Browne, *British Medical Journal*, March 15, p. 594.)

CHRONIC CYSTITIS.—Treatment of.

Prof. v. Mosetig-Moorhof recommends half a drachm of the following emulsion injected into the bladder, after previous cleansing, in a pint of water: ℞. Iodoform, ℥ xij; glycerin, ℥ x; distilled water, ℥ liiss; gum tragacanth, grs. iv. M. The injection should be made on every third day. After three or four injections the catarrhal inflammation is much or wholly relieved. (*American Journal*, Jan.)

CYSTITIS IN THE FEMALE.—Creolin in.

Having found creolin so valuable as a local application in cervical catarrh, and a mixture so useful in leucorrhœa, and reading the statement made by Chéron in the *Revue Médico-Chirurgicale des Maladies des Femmes*, about a year since, that he had cured a urethritis by injecting into the bladder a two per cent. mixture of creolin, I was led to try the remedy in some cases of cystitis. The first patient had been suffering some months with the disease. I used a two per cent. mixture, producing no pain, and having a very satisfactory result. The second patient had acute cystitis following the use of the catheter after the removal of an ovarian tumour: the nurse was an experienced one, and very careful as to the cleanliness of the instrument, but never used an antiseptic solution for washing the catheter. The inflammation of the bladder was severe; frequent removal of the urine was necessary, and it was very offensive and contained a large quantity of purulent matter. Following the example of Chéron, and emboldened by my previous success, I washed out the bladder with a warm mixture of creolin and water, the proportions being the same as before. The irrigation was followed by violent local suffering, which lasted for several hours; the urine, however, had no offensive odour for half a day, and contained less pus. Next day I repeated the injection, but with only one and a half per cent. of creolin. The injection still caused great suffering, and it was not repeated. Nevertheless a cure rapidly followed, no medicines being used internally; in a week the urine was clear and the cystitis had vanished. (Dr. Theophilus Parvin, *Medical News*, Nov. 30, p. 599.)

DIABETES INSIPIDUS.—Antipyrin in.

Opitz (*Deut. med. Wochenschr.*, 1889) administered antipyrin to three cases of diabetes insipidus in which long-continued treatment of other kinds had been valueless. The results were immediate, and all the symptoms at once disappeared. In one case the cure

was permanent and in another very lasting after the withdrawal of the medicine. In the third case the amount of urine reached again its former figure, to diminish again when the administration of antipyrin was recommenced. Two of the cases were very severe, one of them having lasted twenty years, and the other excreting sixteen quarts daily. The initial dose of the drug should be 30 grains daily, and this should be increased 15 grains each day until 90 grains are being given, or the diminution of the secretion of urine appears. After about eight days the medicine should be omitted, in order to observe whether the good effects remain. The author believes that even should further trial of antipyrin show that it does not always succeed in diabetes insipidus, yet for many cases the prognosis will be certainly made better by the use of the drug. (*American Journal*, Dec., p. 619.)

EXPLORATORY PUNCTURE OF THE KIDNEY.

I would restrict the use of puncture as follows: 1. To decide in doubtful cases between solid and fluid tumours of the kidney. 2. To relieve painful distension when nephrotomy for some special reason is not at once advisable or possible. 3. To remove urine, or serum, or pus from a very large tumour, to reduce its bulk during the performance of nephrectomy. 4. As a tentative attempt at cure in some cases of simple cyst or of hydronephrosis, though the chance of cure is, I think, very slight. 5. To localise the position of renal or circumrenal abscess, when the physical signs are not clear enough for free incision. In such cases to be immediately followed by free incision when the pus is found. 6. To gain time, and relieve the harmful tension in some cases of calculous suppression. I would restrict the use of nephrotomy—1. To cases of calculous suppression, in which incision seems preferable to mere puncture, with the chance of being also able to remove the stone—i.e., if further experience shows that this is a safer and better operation than my combined method. 2. For the cure, by subsequent drainage, of simple cysts, abscesses, and hydatids. The question of possible cure in some cases of hydronephrosis to be further tested. 3. For the cure, by subsequent drainage, of traumatic pyonephrosis or pyelitis, and in the early stages of tubercular suppuration. 4. For the possible cure of more advanced calculous or tubercular suppurations, when the patient will not submit to nephrectomy. 5. For the performance of nephrolithotomy in some cases, if extended experience shows that this procedure possesses any advantages over the combined method, or when those who have no experience in abdominal surgery are compelled to operate. (Mr. J. Knowsley Thornton, p. 332.)

GLYCOSURIA AND RAYNAUD'S DISEASE.

I have observed the occurrence of glycosuria in two cases of Raynaud's disease, and with these I may couple the notes of a case

which I had the opportunity of watching for several years. The patient was a gentleman of the age, when I first saw him, of 64. He was rather stout, had albuminuria and casts in the urine, and was passing a good deal of sugar without polyuria. When I found these conditions I put him upon a careful diet, which, I am bound to say, he entirely disregarded. Shortly afterwards circular sloughs of very slight depth made their appearance on his legs, about equally on both. Their form made me suspect the influence of syphilis, but upon this point he was not communicative. The history of his children makes it pretty certain, however, that he had had syphilis severely. I treated him with iodide of potassium and kept him at rest for many weeks, with the result that the sloughs separated and the wounds healed. He now remained fairly well, though with diminished faculties, for six years, and then again consulted me for the reappearance of sloughs, now mainly confined to his left leg, in which I found, in addition to extensive sloughs still of a superficial character, a complete obstruction of the femoral artery, which certainly had not existed before. Placed in bed and carefully nursed, while the administration of iodide of potassium was steadily maintained, he survived for more than six months. Renal disease, glycosuria, and syphilis seemed all to have played their part in the fatal termination, and to the end there was no such general sloughing as one would have expected to result, in such a damaged constitution, from the blocking of the femoral artery. Here is another illustration of the complexity of the symptoms which are found in many cases of glycosuria, or I may perhaps say of the complexity of the causes which may determine the occurrence of glycosuria. (Dr. W. M. Ord, *British Med. Journal*, Nov. 2, p. 966.)

GLYCOSURIA IN STOUT PERSONS.

The occurrence of glycosuria in very stout people is certainly a noteworthy fact. I have seen it in people stout by inheritance and without other sign of disease; in people stout by reason of unwise habits of life, sometimes in the way of want of exercise, notably in the way of alcoholic indulgence; and I am inclined to regard both the accumulation of fat and the occurrence of glycosuria as marks of imperfect forms of nutrition. In addition to these causes we cannot overlook the influence of persistent alcoholic excitement of the liver in many cases included in the group just referred to. I find in my notes records of many cases in which, together with obesity, there were marked indications of affection of the liver. In most cases the liver was enlarged and tender; in a much smaller number, reduced. In most, with the alteration in the size of the liver, there coincided such symptoms as occasional jaundice, morning sickness, and great impairment of appetite. It is fair to suppose that in such cases the irritation of the liver by alcohol produced a reflex active hyperæmia, and consequently glycosuria, so that the relation of corpulence to glycosuria is decidedly complex. It is

necessary, however, to remember that not a few of the victims of alcoholism come to us emaciated and still present glycosuria. I am much interested in finding that, in a very considerable proportion of cases of this class, valvular disease of the heart is detected in addition to the affection of the liver. At first sight this, by causing backward pressure into the liver, would appear to oppose the introduction into that organ of an excessive amount of arterial blood. I am not prepared at the present moment to explain the part taken, if any, by the valvular disease in the favouring of glycosuria. But the concurrence comes out strongly in my records and must demand further attention. I think it probable that irregularities of arterial tension will here have to be considered. (Dr. W. M. Ord, *British Med. Journal*, Nov. 2, p. 965.)

INCONTINENCE OF URINE.—Electrical Treatment.

Guyon has long since shown the clinical value of the electrical treatment in the therapeutics of incontinence of urine. Unlike Weber, Manduit, and others who preceded him, Guyon applies the current directly to the membranous urethra with the idea of increasing the tone of the true vesical sphincter, and has reported many brilliant cures as a result of this treatment.

Jamin (*Annales des Maladies des Organes Génito-urinaires*) publishes a case in which electrical applications were equally serviceable in a young woman affected with nocturnal incontinence since infancy. This patient had been subjected to most thorough and exhaustive trials of all the ordinary remedies. The hope of amelioration with the appearance of the menses had not been realized. Belladonna pushed to its extreme physiological limit had been of no avail. Finally she reluctantly consented to local electrical treatment. This was continued for one month, the application being made every other day, and resulted in a complete cure. The urethral electrode (No. 16 olive-pointed) was attached to the negative pole, and was passed up and down along the whole extent of the urethra. The positive electrode was placed upon the thigh to avoid all action upon the bladder. Each séance did not last more than five minutes, and the current strength was not sufficient to cause pain. (*American Journal*, Oct., p. 417.)

INCONTINENCE OF URINE.—Nocturnal.

A combination of bromide of potassium and tincture of belladonna is recommended as superior to either of these agents alone. Before retiring, ten grains of the bromide should be taken, and at the same time from ten to twenty drops of the tincture of belladonna. (*American Journal*, Jan., p. 72.)

MOVABLE KIDNEY.—Treatment.

In renal surgery the condition of which I have the most experience is movable kidney. This malposition of the kidney is more frequently met with, and gives rise to graver symptoms, than most

medical practitioners suspect. But while common, and leading to much inconvenience to the patient, it rarely demands operative interference. Out of twenty-seven cases which I have met with in hospital and private practice, only seven have called for treatment by operation. In the great majority of cases the application of a well-fitting elastic bandage, with an air pad, is sufficient to relieve the patient from distressing symptoms. The method of employing pressure which I have found most useful, and most easily applied by the patient, is to have a well-fitting abdominal elastic bandage, extending from the line of Poupart's ligament to the level of the sixth or seventh rib. The bandage should be made to fit the body accurately and firmly, but without exerting undue pressure at any point. It may be made of one piece, or, what I consider much better, of strips of elastic bandage sewn together, and united in the middle line in front by means of steel slips similar to those used to fix stays (busks). The patient should have her bowels well opened every morning, and then, before getting up for the day, should slip over the lower extremities, and upwards around the abdomen, a tight-fitting jersey, applying over the region of the kidney an air pad, and then buckling over it the broad elastic bandage. (Dr. David Newman, *British Medical Journal*, Nov. 16, p. 1084.)

[See also Mr. Henry Morris's article on the treatment of Movable Kidney by Nephrorraphy, at page 350 of this vol. of the *Retrospect*.]

PROSTATE GLAND.—Its Enlargement or Hypertrophy.

In a third paper on this subject in the last number of the *Journal of Anatomy and Physiology*, Mr. Griffiths, the assistant to the Professor of Surgery at Cambridge, arrives at the following conclusions: 1. That enlargement or hypertrophy of the prostate gland results from a growth of the gland tubules with their associated muscle, so as to form new gland substance, closely resembling in its structure the normal gland. This constitutes the first or glandular stage. 2. That after a variable time degenerative changes set in, which ultimately convert the new tissue into a mass of more or less dense, fibrous, connective tissue, containing only the atrophied remains of the glandular and muscular elements. This constitutes the second or fibrous stage. 3. That no enlargement takes place behind the urethra except when glandular substance exists behind and above the level of the veru montanum in the situation of the "third" or median lobe. 4. That the so-called "tumours" are not in reality tumours, but merely pronounced localised enlargements of the gland, which pass through the same stages as the gland when enlarged as a whole. 5. That true muscular tumours (myomata) do sometimes, though rarely, arise in the substance of the prostate gland, but that they are pathologically different from the ordinary local or general enlargement of the gland. (*Lancet*, Feb. 15, p. 361.)

PROSTATIC ENLARGEMENT.—Its Operative Treatment.

Taking into consideration our present knowledge, it appears that when a catheter patient has got into such a state that the frequent use of the instrument renders life burdensome, the bladder should be opened above the pubes. By this means the organ can be completely explored, any calculus extracted, the bladder drained and rested afterwards. If any intravesical prostatic tumour is found, much must depend upon its size. If very large, it is probably a source of great irritation, as well as a urinary obstruction, and it had better be removed. When, however, the growth is small, and especially when a stone has expectedly or unexpectedly been found, which may have been the cause of nearly all the vesical misery, I should advise anyone to hesitate before opening the prostatic capsule and enucleating the lobes. Also, when an elderly man, who leads a tolerably comfortable life by passing his catheter even as often as every three hours, but who is anxious to be relieved altogether of his offending prostate, applies to the surgeon, I should still advise him to hesitate. Prostatectomy is a dangerous operation, only necessary in men already in broken health, and uncertain, even in cases of recovery, of being followed by release from the need of using the catheter. (Mr. G. Buckston Browne, *British Medical Journal*, March 15, p. 596.)

PROSTATIC RETENTION.—Hemorrhage in Cases of.

Occasionally, in the treatment of prostatic retention, we have to deal with hemorrhage into the bladder. This varies from a very slight amount to bleeding of the most serious kind. When not unduly severe, no clots are formed, and although the urine may be the colour of Condyl's fluid for days together, no harm will ensue, if the patient is kept at rest and the urine carefully and periodically drawn. When, however, clots form, the greatest difficulty may be experienced in drawing the urine, and the patient and his attendant in a few days may find themselves perfectly exhausted. When an elderly man in pain has passed his catheter, it is very trying to find no urine coming, because the catheter is blocked with blood-clot, and the clot may be so tenacious that it cannot be dislodged until the catheter is withdrawn; and the instrument may have to be introduced again and again before success is achieved. This repeated night and day, every two or three hours, is wearing to the last degree, and all the while bleeding is going on. At first an arrangement which I have designed, by means of which the patient can dislodge clots from his catheter, without withdrawing the instrument, by means of suction with his mouth, may be of service. But in very severe cases of this sort I have found the best treatment to consist in keeping the patient under the influence of morphine, and allowing the bladder to fill with blood, urine, and clot. I gently put in the catheter now and then, and draw away what fluid I can, but I stay the vesical spasms by more and

more doses of morphine. In about forty-eight hours the bleeding points are sealed, the urine quickly breaks down the blood clot, which comes away like used tea leaves, and recovery follows. I once, in a very desperate case, was on the point of cutting into a bladder to empty it of clot and to do away with the need for catheterisation, by drainage, for the patient and I were entirely exhausted, when it was determined to practise this method, and it was carried out with perfect success. (Mr. G. Buckston Browne, *British Medical Journal*, March 15, p. 594.)

RENAL CALCULUS AND RENAL TUBERCULOSIS.—Differential Diagnosis.

Clinically, one of the most important signs of calculus, as distinct from the early stages of tubercular disease, is the tenderness on pressure over the kidneys so frequently felt in calculous disease. Although there is a recognised tendency for tubercle to attack several of the genito-urinary organs on the same side of the body in succession, the disease does in the majority of cases restrict itself for a considerable time to one organ, and our difficulty lies in making sure if that organ is the kidney or not. As a step towards a correct diagnosis, when stone or tubercle of the kidney is suspected, a careful examination *per rectum* should be made of the prostate and vesiculæ seminales; the urine should be passed in three separate portions, and each portion separately examined by the microscope, and the presence of minute worm-like threads of mucus visible to the naked eye should be looked for in the urine. When the prostate is affected these threads are often found, and the urine, all or part of it, is feebly acid, neutral, or even slightly alkaline, whereas in tubercular disease of the kidney the urine contains a large quantity of pus, and is unusually acid, unless both kidneys are affected. (Mr. Henry Morris, *Brit. Med. Jour.*, Nov. 16.)

RENAL CALCULUS.—Value of Rest in the Treatment of.

A point in connection with the treatment of renal calculus is the benefit derived from perfect rest. This was most strikingly brought under my notice in a case where I deemed it advisable to perform nephrolithotomy, but where the patient refused to submit to the operation. I then resorted to rest in bed. After a month's rest the renal colic and hæmaturia, from which the patient suffered severely, disappeared, and his general health steadily improved. After three months I permitted him to take moderate exercise, and now (three years later) he is able to move about with almost complete freedom, seldom complains of any discomfort, and no hæmaturia has been observed during the last fifteen months. With this case in view it is now my general rule to try the effects of rest in bed for a considerable period before submitting the patient to even a moderate risk of a nephrolithotomy. By adopting this treatment the calculus may become so firmly fixed in the sub-

stance of the kidney that it causes hardly any distress to the patient. However, should this treatment fail, the sooner a radical operation is performed the better, as there is always the danger of the calculus setting up suppuration in the substance of the kidney, when the prognosis is rendered more grave. Since 1872, 60 nephrolithotomies for calculus, with suppurative disease of the kidney, have resulted in only 34 recoveries, and the statistics have not improved, as might be expected, during the latter half of that period. (Dr. David Newman, *British Medical Journal*, Nov. 16, p. 1085.)

STONE IN CHILDREN.—Its Development.

At the Nottingham Medico-Chirurgical Society, on Dec. 18, 1889, Dr. Marshall reviewed briefly the various views held in reference to the development of lithæmia, and expressed his belief in the importance of errors of diet in its production, particularly the abuse of milk and substitution of this fluid for water as a drink. A quotation was given from Heister, written 150 years ago, showing that the fact that "stone" was never found in the children of the rich had been fully understood by the surgeons of his time. Mr. Plowright's observations in connection with sodium chloride were also advanced and warmly supported. The writer of the paper stated that he had for many years advocated the free use of common salt as well as water. The value of Contrexéville water was also pointed out. In passing, the statement was made that enlarged tonsils and chronic pharyngitis were in some way connected with the same dietetic errors. In spite of the conflicting evidence from India, Dr. Marshall still held to the belief that the abuse of the farinacea was largely answerable for the development of "stone." A small orifice to the urethra—which, as was pointed out, became smaller when the prepuce was adherent to the orifice at the time of a circumcision being done—was noted as being very common, and a probable cause of imperfect emptying of the male viscus. Champneys's observations on this question were mentioned to explain the existence of the adhesion, and a case was cited illustrating the fact that all the so-called classical symptoms of stone in the bladder might be present, but the trouble exist really in the kidney. Prolapsus ani and blood in the urine were spoken of as at the best but weak evidence of calculus in the bladder. Dr. Marshall could not support the general rule advanced by Walsham that in every case of prolapsus ani the boy should be "sounded." As to treatment, the great improvement by the introduction of litholapaxy was insisted on, and the opinion expressed that all surgeons operating on children must adopt it. The "lateral" operation would have to be given up, although reluctantly, in favour of the *sectio alta*, but the case of the latter was at present incomplete. The arguments of incontinence and impotence so frequently adduced against Cheselden's operation were dealt with. The former was stated always to get well at puberty if it occurred.

and the latter was unsupported by Dr. Marshall's experience, and no distinct evidence could be found bearing upon the question. Reference was made to the work of Freyer, Keegan, and Walsham, and calculi were shown, the result of twenty-six successful lateral lithotomies (no death having occurred amongst Dr. Marshall's cases), besides the products of cases of litholapaxy. Dr. Marshall concluded by saying it was scarcely credible that less than four years' work should render Cheselden's operation almost historical, and seemed likely to send the lithotomy staff as much into oblivion as Hertoloup's table and instruments, or the gorget so much revered in the past. Dr. Marshall also showed a calculus (uric acid) weighing $2\frac{1}{2}$ ounces removed recently by himself by litholapaxy, and read notes of the case, which was successful. In addition, Dr. Marshall showed some interesting calculi for Mr. Wright. Two were preputial, and one an instance of disintegration of a calculus in the bladder. (*British Medical Journal*, Jan. 11, p. 80.)

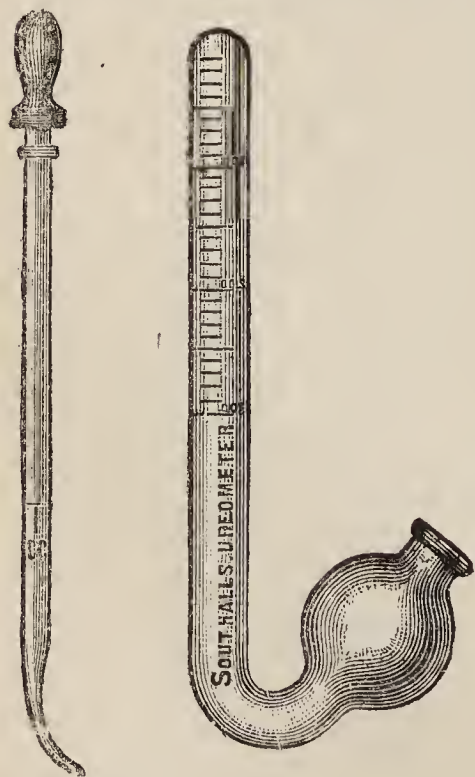
TUBERCULOUS KIDNEY.—Nephrectomy for.

From a limited experience of nephrectomy in tubercular disease, I am inclined to think that the operation is of very doubtful value, excepting in quite early stages. In advanced cases it is dangerous and useless, because the abdominal lymphatic glands and the opposite kidney so generally share in the disease. In two cases in which I have done nephrectomy secondarily to nephrotomy I have found abscesses of large size in the upper part of the kidney, supuration around the kidney, and extensive affection of the lymphatic glands. In another case a woman lived three days after nephrectomy and died of anuria, having passed only three ounces of urine in the three days. There had been before the operation no evidence that the other kidney was affected; but after death there was scarcely any sound tissue left in it, and though of normal size it was full of small foci or scrofulous matter. Such a case as this might lead one to regret that our methods for testing the capacity of each kidney separately are not more perfect, yet I know, only too certainly, that though positive evidence of the unsoundness of the opposite kidney would warn us against nephrectomy, negative evidence in the urine does not prove that the organ from which it is derived is unaffected by commencing tubercle, and may be incapable of sustaining its function for long, or even at all under the stress and shock of nephrectomy. In quite the early stages of tubercle, on the other hand, I believe good results will in future be obtained by nephrectomy. By the early stages I do not mean to imply any measure of time, because there is so much variableness in the rate of progress of tubercular affections of the urinary organs. In some cases the disease will take several years to accomplish what in other cases it does in as many months or weeks. But we have, I think, a test of some value in the tendency of tubercle to spread amongst the genito-urinary organs of the same side; so that with

symptoms of the disease of one kidney lasting for some months, or even for one or two years, without any enlargement of prostate, vesicula seminalis, vas deferens, or testis of the same side, we have as good grounds as any we can at present obtain for believing that the disease is still limited to its original site, and that by removing the kidney we take away the whole of the parts affected by the disease. But even so, we have to take the risk of acute tuberculosis in lungs or opposite kidney setting in at some time after the operation, and may be before convalescence is completely established. (Mr. Henry Morris, *British Medical Journal*, Nov. 16, p. 1082.)

UREAMETRY.—New Ureameter.

After full trial I have finally chosen for daily use the ureameter devised by Dr. Charles Doremus of New York. Its construction is of the very simplest kind, and will easily be understood by reference to the accompanying woodcut. It consists of two parts. First, a vertical glass tube, closed at the top and bent sharply below, where it expands into a bulb, having an orifice at its upper part. Secondly, a pipette with an elastic rubber nipple. Both parts are graduated; the vertical tube so as to show the quantity of urea (as indicated by the volume of nitrogen) in each cubic centimetre of urine tested, while the pipette is graduated so as to show one cubic centimetre.



The instrument is used thus: First, the vertical tube is filled with a solution of hypobromite of sodium in the following manner. Holding it vertically, the operator pours the solution into the bulb, and when it is rather more than half full he inclines the apparatus horizontally until the entire tube is filled and a little left in the bulb—say, one-third or thereabouts. Then he restores it to the vertical position. Secondly, he draws into the pipette, by means of the elastic nipple, a cubic centimetre of the urine to be tested, which should be taken from the collected excretion of twenty-four hours, the exact quantity of which should be noted. Finally, he passes the nozzle of the pipette into the bulb

until the point is exactly under the vertical tube, and then slowly compresses the nipple. The urine being lighter than the hypobromite solution rises through it, and on its way the contained urea is decomposed and its nitrogen set free.

This gas collects at the upper part of the vertical tube, pressing the fluid down into the bulb, and being an exact measure of the urea from which it is derived, enables the operator to ascertain the exact quantity of urea in the cubic centimetre of urine used. The graduation is so arranged as to indicate the proportion of urea per litre of urine. This process, which has taken so many lines to describe, occupies about one minute, and then the instrument is set aside on a little stand, and the final observation taken when effervescence ceases and the quantity of nitrogen becomes obvious. In the case of albuminous urine the subsidence of effervescence is somewhat retarded owing to the tenacity of the bubbles. As the metrical system of measurement is not familiar to all practitioners, whereas that of grains and ounces is quite so, I have asked Messrs. Southall of Birmingham, the manufacturers of this ureameter in England, to add a second graduation to the vertical tube, indicating the quantity of urea per ounce. They have done so with great skill, and now make these instruments, at a merely nominal cost, with either the metrical graduation or the English equivalents, or with both. I venture to draw attention to this very simple ureameter, being convinced that if physicians would use it habitually in the numerous cases of renal deficiency which are met with in everyday practice, they might obtain valuable indications for treatment, and avoid many calamitous surprises. (Dr. F. R. Cruise, of Dublin, *Lancet*, March 22, p. 644.)

URIC ACID.—Influence of Opium and Morphine on.

My position with regard to opium and morphine amounts to this. A large number of drugs—iron, lead, the mineral acids and their salts, antipyrin (?) nitro-glycerin (?)—have one effect in common, namely, that of diminishing the excretion of uric acid in the urine, that is, I believe, driving it out of the blood into the liver, spleen, joints, etc. Exactly contemporaneously with the diminished excretion of uric acid due to any of these drugs comes a fall of pulse tension, and a mental condition of brightness and well being. Uric acid headache or mental depression, if present, are cured, and in their place come pricking and shooting pains in the joints; most marked in those who have previously suffered with gouty arthritis. On the other hand, an alkali, as soda or potash, while increasing the excretion of uric acid, produces symptoms which are the exact reverse of those above mentioned. As these drugs have no obvious properties in common, I have inferred that the results they produce are due to their action on uric acid, which I have pointed out in previous papers. Opium and morphine, as we have seen, diminish the excretion of uric acid, and at the same time reduce pulse tension, cause mental brightness and well-being, cure a uric acid headache, and cause at the same time pricking and shooting pains in the joints; they, therefore, belong to the iron, lead, and acid group of drugs with which their effects exactly cor-

respond, and as they always cause a marked rise of the acidity of the urine, I conclude that their action on uric acid is the result of their action on acidity. With regard to convulsions, I have pointed out the relation of some cases of epilepsy to the excretion of uric acid. I have now shown that morphine, probably by acting on uric acid, relieves or removes high tension pulse, mental depression, and headache. It has been noticed that morphine is of much use in certain uræmic and puerperal convulsions which are generally accompanied by a high tension pulse. I now suggest that its curative action in these troubles is also due to its effect on uric acid, and that further investigation may show that these convulsions, like some of those in ordinary epilepsy, have a more important relation to the excretion of uric acid and its effects on pulse tension than has hitherto been suspected. (Dr. A. Haig, *British Medical Journal*, Nov. 30, p. 1212.)

AFFECTIONS OF THE BONES, JOINTS, ETC.

ACUTE ARTHRITIS OF INFANTS.

[The following conclusions are appended to an exhaustive essay on this subject, an abstract of which appears at p. 283 of this volume.]

1. Acute arthritis of infants occurs most frequently during the first year of life. 2. It is pyæmic in character, an osteomyelitis of infant life, and is caused by one of the forms of staphylococci, most frequently the staphylococcus albus or aureus; may follow traumas or the exanthemata. 3. The most frequent site of infection is the epiphysis near the joint, which in early life is frequently intracapsular. 4. The disease progresses rapidly, and nearly fifty per cent. of the cases have terminated fatally, the most frequent cause of death being exhaustion. 5. A more or less complete destruction of the "joint end" of the bone, pathological dislocations, flail-like joints and loss of length of limb, rarely ankylosis, are the most common results of the disease. 6. Disease is most frequently met with in hip, knee, and shoulder. 7. As soon as the disease is recognized the pus should be evacuated promptly, the joint properly drained and parts dressed antiseptically. 8. The treatment of resulting deformities should be conducted on general orthopædic principles. (Dr. W. R. Townsend, *American Journal*, Jan., p. 22.)

COMPOUND DISLOCATIONS OF THE ANKLE-JOINT.

At the Royal Academy of Medicine in Ireland on Dec. 6, 1889, Mr. Croly read a paper, which was illustrated by three interesting cases. The first was that of a farmer whose right foot was caught in a mowing machine, causing compound dislocation of the tibia and fibula forwards on the dorsum of the foot; the tendons in front of the ankle were injured, and the entire front of the joint was laid open. Mr. Croly was telegraphed for to amputate the limb, but

decided, on consultation with the father, to endeavour to save the foot. The dislocation was reduced under an anæsthetic, and the wound dressed antiseptically; free incisions were made subsequently to relieve tension, and the patient recovered with a very useful foot. The second case occurred in a coal porter of very intemperate habits in May, 1888. On the patient's admission into the City of Dublin Hospital, three inches of the lower extremity of the right tibia protruded through the soft parts; the lower end of the fibula was comminuted, and the foot forcibly everted. The patient was anæsthetised with ether, the parts washed with an antiseptic lotion, and reduction effected by flexing the limb. A large drainage tube was passed through the joint, and antiseptic dressings applied. Jointable splints were applied in the flexed position. The limb became enormously swollen the day after the accident, and bullæ appeared. Numerous free incisions were made to relieve tension. Opiates and bromides were administered. Six months subsequently the articular end of the tibia was removed, after which the wound healed. The third case occurred in a man, aged twenty-eight, who received a compound dislocation of the tibia and fibula outwards. On his admission to the City of Dublin Hospital, reduction was effected by slightly enlarging the wound. The patient, who was of abstemious habits, made a very rapid recovery. In three months he walked up and down the ward alone, and his foot is now as useful as the other. These patients, with drawings and photographs of the dislocations at the time of their occurrence, were exhibited to the Society. The cases bear out the teaching of Sir A. Cooper, "that amputation should not be performed in compound luxations of the ankle-joint." (*Lancet*, Jan. 11.

COMPOUND DISLOCATION OF THE ANKLE-JOINT.

[Mr. Hutchinson relates the following case in illustration of the surgical canon, that in all cases of compound dislocation or compound fracture into joints the limb should be saved, unless they are attended by exceptional complications.] Two plans of treatment are at present in use with this object. The one which consists in the exclusion or destruction of germs (the antiseptic); and the one which, by the systematic use of cold aims at preventing inflammation (the antiphlogistic plan). I will say nothing now of the Listerian or antiseptic method of dressing, further than that in reference to compound dislocations only, it may probably count by thousands the number of limbs that have been saved. My own experience, both in hospital and private practice, has led me to prefer as being more certain in its results, a modification of what may be called the antiphlogistic plan. With it I have treated many cases of compound dislocation, usually with fracture, into the elbow, ankle, and knee, not to mention smaller joints. The case which I am about to narrate shall be only a fair specimen of results. I was called one summer evening some years ago to see a medical man,

who resided about eight miles from my house, and who had been thrown from his horse. Two or three hours had elapsed between the time of the accident and my getting to him. During the whole of this period his astragalus, the under surface of which was completely extruded from the wound, had been exposed to the air. The case was one of compound dislocation of the rest of the tarsus from the astragalus with a large laceration on the inner side of the ankle. Having had the foot washed, and the bones sponged with spirits of wine and water, I succeeded, under the influence of an anæsthetic, in putting the parts into place. The limb was then placed on a back splint and wrapped from the toes upwards, with strips of lint, soaked in spirits of wine and lead lotion. A nurse was deputed to the duty, unintermitting night and day, of keeping the lint constantly wet. My directions were that the skin of the limb was not to be allowed to become warm, and that if the slightest approach to warmth of limb was noticed more spirit was to be added to the lotion. Large gallon bottles of the lotion were supplied, and the nurse instructed to pour it on as if it were water. Its strength was one of spirit to three of water. The result was that the ankle never inflamed in the least, that the wound healed without secretion, and that the patient was walking about—I believe I may almost say riding—at the end of six weeks. By the use of spirits of wine in this manner I believe that the surgeon has the development of inflammation in an injured joint absolutely under his own control. By sedulous night and day attention to keeping the part cold for a week all risk may be avoided. Many successes have of course attended the use of cold by other methods—the ice-bladder, for instance: but I am sure that none are so convenient or so trustworthy as the plan which I have described. Not only is it useful for compound dislocations, it is far the best for compound fractures also: though in the latter, where there is much injury to soft parts, it is necessary to use a little caution lest gangrene be induced. (*Archives of Surgery*, Oct., p. 121.)

CONGENITAL DISPLACEMENT OF THE HIP-JOINT.—Treatment by Recumbency and Extension.

At the meeting of the British Medical Association held at Brighton in August, 1886, I read a paper in the Surgical Section on the Treatment of Congenital Displacement of the Hip-joint by long-continued Recumbency and Extension. In that paper, after passing in review the chief points in the pathology and clinical history of this affection which are now well-established, I brought prominently before the members the treatment adopted by one of the leading American surgeons, Dr. Buckminster Brown, of Boston, who had carried out the recumbency and extension treatment more thoroughly and for a longer period than had hitherto been done. Dr. Brown had in 1885 published the account of a very successful case, with photographs taken two years and three months after the commencement of

treatment, which had been continued strictly for thirteen months. The child then began to walk in a go-cart for five months longer. To all appearance in this case, one of double displacement in a girl aged 4 years, there was a complete restoration of the natural form of the hips, and the lordosis was also completely removed. The walk was said to be natural, and the patient's health not in any way injured. This success encouraged me to give the treatment a fairer trial than I had hitherto done. At the time of reading the paper I had commenced the treatment in two cases, and since then have applied the same method to four other cases. Two of the six cases were double, that is, both hip-joints affected, and four single; in three of the latter the right hip-joint was affected, and in one the left hip-joint. In two of the cases, both examples of single displacement occurring in girls of about two years of age at the commencement of treatment, recumbency with extension has been carried out to the full period of two years in one, and two years and seven months in the other case; and they have been now some months walking about with a steel support on the affected limb. At the present time I am enabled to report that the result of this treatment appears to be extremely satisfactory, and equally so in both cases. When these children are examined undressed on the table there is no apparent inequality in the length of the legs. Sometimes, by careful measurement, the affected limb seems to be an eighth, or from that to a quarter, of an inch shorter than the other, but we cannot always make as much. The ilio-femoral triangle of the affected limb corresponds pretty closely with that on the healthy side, so that the head of the femur is now retained very nearly in its natural situation, and there is no disposition to any spontaneous alteration. Nor is there any tendency to displacement upwards when gentle manipulation is tried by fixing the pelvis, and testing by a little movement directed upwards from the thigh. Of course this has only been tried gently, but the head of the femur seems to be fairly maintained in its improved position; and the contrast, as compared with the condition of parts before the commencement of treatment, is very great. All the movements of the joints are free, and the muscular nutrition has been well maintained. The general health has not been interfered with, and, indeed, in both instances the parents considered that the children have improved in health. During the whole period of recumbency these children have been drawn out in a spinal carriage in the open air, lying down on the movable plane forming part of the extension couch, the extension acting all the time. This extension couch I have also used with great advantage in two cases of hip-joint disease. (Mr. William Adams, *British Medical Journal*, Feb. 22, p. 406.)

[The method here referred to is fully described, with illustrations, at page 255 of this volume of the *Retrospect*.]

CONGENITAL DISPLACEMENT OF THE HIP-JOINT.

In cases where the whole treatment, as described at page 255, cannot for any reason be carried out, Mr. Adams says that by adopting the following rules much may be done to diminish the consecutive deformity, either in a case of single or double displacement. When one hip-joint only is affected—1. Weight extension must be employed during the night, and part of the day, when the child is reclining on a sofa, say four to six hours, about two hours each time. The extension apparatus for this is simple enough, and such as is usually employed in cases of hip-joint disease. 2. The child may be allowed to walk about in the intervals of reclining, if old enough to use crutches, and then a raised boot of one inch and a half must be worn on the sound limb, the foot of the affected limb not being allowed to touch the ground. The affected limb will however swing backwards and forwards, and its own weight will to some extent act as an extending force. This can be carried out by the poorest class of patients. Another method of locomotion, when a little expense is not objected to and more attention can be given, is by means of the splint or apparatus, which Mr. Ernst has constructed for these cases, somewhat resembling the American hip-joint instrument, which combines extension with motion, and crutches are avoided, except perhaps to start with. The child usually gets along very well with one or two sticks. The raised boot is of course necessary on the sound limb when this apparatus is used, and an iron ring-patten on the foot of the affected limb, the boot being attached to the ring by straps, and the extension made by a rack-and-pinion movement in the side steel. The pelvic belt with pad placed above the great trochanter should also be used. When both hip-joints are affected weight extension at night might be used; and recumbency with weight extension, during a portion of the day, say from four to six hours, taken partly in the morning and partly in the afternoon. Long standing and long sitting should be avoided, and the child should walk as little as possible in the earlier years of life. By these means the consecutive deformity will be diminished. (*Brit. Med. Journal*, Feb. 22, p. 409.)

DUPUYTREN'S FINGER CONTRACTION.

At the Medical Society of London, on March 24, 1890, Mr. Adams gave a general *résumé* of the work done by other observers, and contributions to our knowledge of the pathology, clinical history, and treatment of Dupuytren's Finger Contraction during the last ten years. Since the publication of his treatise on this subject in 1879 two distinguished American surgeons, Dr. W. W. Keen of Philadelphia and Dr. Robert Abbe of New York, had contributed important papers. Mr. Adams had not met with any cases associated with the neurotic symptoms described by Dr. Abbe, and still believed in the gouty thickening of the palmar fascia. Dr. Keen had contributed a valuable statistical table of 253 cases collected

from various sources, including seventy cases recorded by Mr. Noble Smith in 1885. As to treatment, Mr. Adams still adhered to the subcutaneous operation, which he had practised for many years—viz., the subcutaneous division of all the contracted bands of fascia that could be detected by as many punctures as might be necessary—followed by immediate extension, or extension as rapidly as could be carried out, without causing pain. Notwithstanding the success which had followed this operation in the hands of all surgeons who had paid sufficient attention to all the necessary details, some English and American surgeons had been inclined to return to the old method of open wound, with antiseptic dressing. Mr. Macready had recently ably compared the relative merits of the subcutaneous and the open-wound operation. The open-wound operation was totally inapplicable to the cases of phalangeal contraction, and when this operation was performed, if relapse should occur from cicatricial contraction, the case became hopeless. In one case of this kind Mr. Macready was obliged to amputate the little finger. The subcutaneous operation could be repeated with as much success as the first operation. In the after-treatment, Mr. Adams still used the steel instrument fitted to the dorsal aspect of the hand, with prolongations along the contracted finger, or fingers, having joints corresponding to the phalangeal articulations, movable by rack-and-pinion joints, in all cases of phalangeal contraction. In cases of simple palmar contraction this might be dispensed with, and a padded metal splint, capable of being bent to any curve and altered from day to day, might be applied. Mechanical extension should be maintained for three weeks, night and day, allowing only a little passive movement, and then gradually discontinued during the day, but maintained at night for several months by a simple form of retentive splint. (*Lancet*, March 29, p. 705.)

DUPUYTREN'S CONTRACTION.—The Subcutaneous and Open Methods of Treatment Compared.

The principal objection raised against the subcutaneous operation is that the fascia, which is the seat of the contraction, is left behind, and that therefore recurrence will take place. That some amount of bending occasionally appears with the lapse of time is not denied. There is no hope, however, of ascertaining with precision the proportion of cases that relapse. Mr. Wm. Adams tells me that his estimate of recurrence is 10 per cent. or a little less. If it were much larger than this a period of freedom for many years would be cheaply purchased at so small a sacrifice as this operation demands. And it has this advantage, that it can be repeated; whereas, after excision of the fascia, a relapse is lifelong and irremediable. The more plausible objections to the subcutaneous treatment consist in its inability to correct the gouty deformity of the joints which sometimes accompanies the contraction of the fascia and prevents full restoration of movement. Secondly, in the impossibility of dividing:

the bands when they have undergone calcareous degeneration, and, lastly, in the difficulty of the operation itself. Unfortunately there is no operation, either subcutaneous or open, that will restore the joints that are damaged by gout, though the gouty swelling often diminishes after the subcutaneous operation. The calcareous degeneration of a part of the fascia, which was met with in a case of my own, can only be dealt with, I presume, by excision. The open treatment has a manifest advantage in the facility with which it is performed. Anyone, even in his first rudiments, can execute the simple dissection of Kocher, but the subcutaneous operation, easy as it appears, is, in cases of any severity, attended with considerable difficulty. This fact is insisted upon by Dr. Myrtle in the paper wherein he gives the best English description of the onset and course of the disease. But the difficulty of the operation, were it much greater than it is, would be no discouragement to surgeons of such well-known ability as those whose cases of open wound I have ventured to criticise. The subcutaneous treatment possesses this superiority, that as it produces no constitutional effects, it can be done at any age and in any condition of health. The average age at operation in the cases done after Kocher's method was 49.5, and the average in the cases on which I have operated subcutaneously was 60; two of these patients were 68. Few surgeons would recommend an operation involving long incisions to a person verging upon 70, and few persons of that age would accept such a recommendation. (Mr. J. Macready, Surgeon to the Great Northern Central Hospital, *British Medical Journal*, Feb. 22, p. 413.)

LATERAL CURVATURE OF SPINE.—*Rachilysis.*

At the Medical Society of London, on March 10th, 1890, Mr. Barwell read a paper on the Treatment of Lateral Curvature of the Spine by *Rachilysis*. He said that many different causes might set up the initial phase of lateral curvature; it was a position in many instances forced on the spine by causes situated elsewhere, either in the body or altogether external, but throughout the first stage it remained, as far as the spine was concerned, a posture without morbid anatomy. But when this posture had continued a certain time the intervertebral discs retained the wedge shape which the sideways bend forced upon them, becoming persistently thinner on the side of the concavity. The anterior and posterior common ligaments, whose attachments on the side of convexity separated more or less widely, and on that of the concavity approximated, changed as all white fibrous tissues did under like circumstances: where constantly excessively stretched, they atrophied and became thin; where continually lax, they thickened and shortened. Therefore the margin of those two ligaments which lay next the convexity of the curve became atrophied, lengthened, and membranous; while that edge that lay in the concavity became strong, thick, and shortened.

Also these ligaments after a certain time shifted their position, partly apparently by a process of gliding, and partly by actual addition of fibre along the edge subtending the concavity of the curve. For verification of these statements Mr. Barwell referred to a post-mortem examination made by himself in 1882, and to others made under more favourable circumstances by Nicoladoni, Eulenberg, and other morbid anatomists. The effect of these ligamentous changes was to bend the spine into the laterally curved form, as the knee or other joint was often tied into a flexed position by ligamentous contraction, and as in the case of joints restoration of rectitude was greatly impeded or altogether prevented, unless forcible means were used to stretch those shortened ligaments. Such application of power to the spine lying next to large cavities and important organs had met with difficulties hitherto insuperable, but which the author had overcome in the following manner. At the sides of the room he fitted an arrangement of rings and hooks from which the force worked. One padded band with loop attached was placed on the apex of the lumbar curve. The patient was inclined over against the restraint of the band until that curve was annulled or reversed, and the trunk was held in that position by a lanyard under the left axilla. Another belt with the loop in the contrary direction was placed on the apex of the dorsal curve. A system of pulleys was hitched to the loop, a wooden strut being placed between the laps of each band so as to prevent constriction. Mr. Barwell showed the action of his appliance on two boys from the Cripples' Home in Kensington, pointing out how their backs became straighter, and that the process was quite painless. Some of the Fellows measured their spines before and during the use of the power, and found in one case an increase of length of three-quarters of an inch, in the other of one inch and three-quarters—a result which showed that the spines were thereby straightened and the contracted ligaments stretched. Some cases were added of very rapid amelioration, and in one still under treatment almost complete rectitude was produced in about thirteen months. (*Lancet*, March 15, p. 601.)

PERFORATING ULCER OF THE FOOT.

MM. Tuffier and Chipault, after carefully studying several cases of *mal perforant*, two of which they report, arrive at the following conclusions (*Archives générales de Méd.*) 1. There exists in certain cases, at the earliest period of the disease, an arthritis of the articulation immediately adjoining the affected region. 2. This arthritis may precede the ulceration. 3. When the *mal perforant* is unilateral, the arthritis may be bilateral and may usher in a perforating ulcer of the opposite side. 4. This articular disease, like the accompanying anæsthesia, persists after the ulceration has healed. 5. The two lesions, the ulcer and the arthropathy, are independent of each other, but are due to the same cause. (*American Jour.*, Feb.)

TUBERCULOUS DISEASE OF BONES AND JOINTS.—Treatment by Parenchymatous Injections of Iodoform Oil.

Prof. Trendelenburg, toward the end of last year (*Münch. med. Wochens*), was led by a communication of Dr. Heusner to try iodoform injections in several cases of tuberculous bone and joint disease, and his results were so satisfactory that he has since then employed the same method in a large number of cases. A 5 per cent. ethereal solution of iodoform was used at first, but as it gave rise to great pain and sometimes to sloughing, iodoform oil, 5 to 25 was substituted. It should be freshly prepared just before using. 30 to 50 minims are injected every eight days into the diseased tissues, after careful disinfection of the skin. If abscesses have already formed, they are first emptied and then injected. If fistulæ are present, it is found that injections into the fistulæ themselves are less effective than when they are made into the surrounding tissues. A sublimate dressing is applied after each injection. In injecting into fungous masses and into the tissues around fistulæ, considerable force must be used, which, however, seems to diffuse the iodoform the more widely. In some cases beneficial effects of the injections are observed after three or four treatments, in others not until many more have been employed. Pain usually disappears early. In favorable cases the swelling disappears, the abscesses diminish in size and number. The fistulæ are obstinate, and entire healing occurs in them only after long treatment. Movement in diseased joints is partly reestablished. In other cases a less degree of improvement is obtained, and in others operation becomes necessary, but even these seem benefited by this preparatory treatment. There were no cases of iodoform poisoning. It seems wise to sterilize the oil used. Control experiments with Peruvian balsam show the superiority of the iodoform oil. Of 109 cases treated in this way, 28 required other operative interference; 36 seemed to be cured; 37 were improved; 12 were not cured; 24 are still under treatment, of whom 14 show considerable improvement. (*American Jour.*, Jan.)

GENERAL SURGERY.
COPAIBA IN SURGERY.

Dr. Beach, visiting surgeon to the Massachusetts General Hospital, points out that in the long-continued use of copaiba as an internal remedy, its value in surgical dressings may have been gradually lost sight of. He was induced to test the drug after reading the interesting description of *Medical, Surgical, and Anatomical Cases*, published by Heister in 1755, in which great importance was attached to the value of balsam of copaiba in the surgical dressings. It was accordingly applied to indolent granulating surfaces by first saturating charpie with the balsam, and then bandaging it upon the ulcer. The unusually rapid growth of healthy granulations was so

clearly attributable to its use that it is now the accepted dressing for granulating surfaces in the wards of his hospital. It is especially adapted for application to the flat, pale, granulating surfaces that commonly result from avulsions of the scalp, to extensive burns and scalds, and to the cavities after operation for removal of necrosed and carious bone. (Practitioner, Jan., p. 63.)

CYSTS AND ADENOMATA OF THE THYROID GLAND.—Cases treated by Extirpation of the Growth.

At the Clinical Society, on Dec. 13th, 1889, Mr. Charters Symonds read notes of Eight cases of Cysts and Adenomata of the Thyroid treated by Extirpation of the Growth (6 in women, 2 in men; one, a woman, being 54 years old, the others being under 30). He sketched the other methods of treatment by injection and incision, and the method used by Professor Hahn, who ligatured masses of fascia and gland as he removed the cyst. In the cases recorded, in one the entire thyroid was removed with a tumour that lay partly beneath the sternum. The lobes were empty, and Mr. Symonds regretted that he had removed them. The operation was undertaken early in 1883, before the cachexia following removal of the whole gland was generally known, and the wide oozing surface left after removal of the growth seemed to promise hemorrhage. In the next case of a solid tumour behind the right lobe, causing dysphagia so complete that the patient had to be fed with a tube, the lobe and tumour were removed by an incision to one side of the median line over the growth. Some difficulty was experienced in obtaining sufficient room, owing to the incision being lateral. On dissecting this tumour it was found to be encapsuled, and to be situated behind the gland, and might easily have been enucleated. Consequently, in subsequent operations, Mr. Symonds decided first to search for the capsule and then to enucleate. In four subsequent cases this was done, and the growths (in one case solid, and in the others partly cystic) were removed without the loss of any blood, and with great facility. As a rule, at most these small vessels required ligature. In one the lobe had to be raised up before the cyst could be reached. In the remaining case the lobe was removed because it appeared to be blended with the cyst; this turned out subsequently not to be the case. All the patients recovered with primary union, and most required but one dressing subsequently to that made at the operation. The method employed might be thus summarised. To make in every case, no matter where the tumour was situated, a median incision, which gave more room and left less scar, and, when the deep fascia was opened, the largest growth could be brought to the median line. To expose certainly and definitely the cyst or adenoma—that is, its fibrous wall, and then to dissect off the gland. If the wall were followed closely no bleeding or trouble was encountered. If the white, glistening wall of a solid tumour or the bluish wall of

a cystic were not seen at once, then the edge of the gland must be sought and raised up till the capsule was seen. If a dissection were commenced outside this severe bleeding would be encountered. In the case of a cyst Mr. Symonds advocated opening it early, after sufficient of the wall had been exposed to secure with forceps, and dissecting back the thyroid. By this means the operation could be performed through a smaller opening, and the resulting scar was slight. The similarity in anatomy between these cysts and adenomata and those of the breast was pointed out, to explain why the growths could so easily be turned out. All the cysts contained in the wall a variable amount of gelatinous glandular material which showed the usual veins lined by cortical or columnar epithelium, and this structure was exactly the same as in the solid forms. As to diagnosis, it was pointed out that the cases suitable for operation were those in which the growth was localised, well defined, and limited to one side. In no case were there two tumours, though multiplicity was not considered to negative operation, there being no reason why two or more localised encapsuled growths should not be extirpated at the same time. It was impossible to decide between cystic and solid forms without exploration. It was held that excision gave more speedy recovery, and was more free from danger than any other method, while the small scar resulting from injection seemed to the author to be counterbalanced by the prolonged treatment and the often severe hectic that followed. Mr. Symonds also pointed out the necessity of the strictest antiseptic precautions in these cases. He had employed the spray except in four cases, where the wound was kept full of sublimate solution. But more particularly he called attention to the necessity of surrounding the neighbourhood of the wound with towels wrung out of lotion; and of operating with the arms of the assistant as well as the surgeon bare, and of wearing a clean linen apron or a towel pinned over the waistcoat from the neck downwards. These subsidiary precautions he considered of far more importance than the spray. He further added that in all the cases except one there were symptoms sufficiently important to demand operation. The one was that of a lady who requested that the growth might be removed. He deprecated operation where symptoms were absent. Two patients were exhibited. One from whom an adenocystoma, measuring three by two inches, was removed through an incision one inch and a half long, presented only a very small scar. The other still exhibited the ocular symptoms of sympathetic paralysis, which had antedated the operation performed nearly three years previously. (*British Medical Journal*, Dec. 21, p. 1390.)

DRY OPERATIONS.

Dr. Landerer (*Archiv Klin. Chir.*) says that now that the great problems of antisepsis have been solved, it remains chiefly to im-

prove in smaller matters our treatment of wounds, and to endeavour not only to cure all patients but to do so *tuto, cito et jucunde*. Influenced by the fear of carbolic, iodoform, and sublimate poisoning in antiseptics, and by the difficulties of procuring sterilized fluids, &c., in asepsis, he has for a long time operated without bringing a drop of fluid of any kind in contact with the wound. The instruments are boiled and kept in a weak carbolic solution. The hands and the field of operation are disinfected by a modification of Fürbringer's method. As the wound is made it is dried with pieces of sublimate gauze and filled with wads of the same material. The larger vessels are tied. Angles and pockets of the wound are united by buried stitches. The wound is entirely closed, no provision for drainage and no opening for that purpose being left. The dressings are applied with moderate pressure. The results of the method, according to his experience in ninety major operations of all sorts, are: 1. All wetting and cooling of the patient are avoided. 2. The loss of blood is reduced to the minimum. 3. There is little or no danger of intoxication from absorption of the antiseptics. 4. The operation is shortened, as there is so much less time spent in arresting hemorrhage. 5. Healing is quicker and safer. 6. The antiseptic details are easier and more manageable. 7. The hands of the operator are not affected by contact with powerful antiseptics. (*American Journal of Medical Science*, Dec., p. 621.)

IODOFORM IN SURGERY.

The true position of iodoform as a surgical dressing has long been questioned. On the one hand are the surgeons who declare that it is a valuable antiseptic; on the other, are the mycologists apparently proving by laboratory experiments that it has little or no antiseptic power. In the *Annals of Surgery* for January, Mr. A. Ernest Maylard, of Glasgow, records an elaborate series of observations upon the influence of iodoform on bacteria, which seem to prove that iodoform in great excess has a germicidal effect upon the microbes of pus. Where the microbes are in abundance, some retarding influence appears to be exercised by iodoform upon their growth and even some diminution in the numbers which subsequently develop; but, if the number present be large, no germicidal effect is observed. The general result of this series of experiments seems to show that iodoform has some distinctive power, and that its supposed or acknowledged value in surgery is borne out by experiments in the laboratory. It may fairly be assumed that where iodoform is added to a wound, it will be largely in excess of any microbes present, and, therefore, precisely in the position in which the experiments seem to indicate that its antiseptic power lies. As compared with many other much more powerful antiseptics, the special value of iodoform must rest upon its prolonged action. Solutions are absorbed, or carried away by the discharges, whereas iodoform remains as an almost permanent application.

So that it is not infrequent to find, on the removal of a dressing, some weeks after its original application, the iodoform still on the surface of the wound, and as active—if the pungency of the odour may be accepted as a criterion of the continuance of its antiseptic power—as when first used.

[These observations do not support the conclusions of Tilanus (*Centralblatt f. Chirurgie*, Jan. 4, 1890), whose experiments convince him that iodoform has a certain amount of influence in retarding the growth of tubercle bacilli, but that in fresh wounds and non-specific suppuration it is only useful as a dry protective.] (Editor of Philadelphia Medical News, Feb. 15, p. 180.)

PLASTER-OF-PARIS SPLINTS.

Dr. Powell, of Toronto, recommends the following method of applying plaster-of-Paris splints for certain kinds of fractures of the leg. “The leg is to be bandaged with cotton batting, which for the purpose is torn into strips four inches wide and applied as a roller. Using the sound leg as a model, to save the injured one from movement, a pattern is cut which will cover in all of the leg excepting a space an inch wide along its anterior aspect. Deep slashes opposite the heel allow the part for the sole of the foot to be brought into a right angle with that for the leg, without forming clumsy folds at the ankle. From this pattern four or five layers of scrim or from six to nine of cheese-cloth are cut. Then, with extension made and the foot properly held, the strips are to be saturated with a cream made by sifting, not stirring, plaster into warm water, smoothed one upon another, applied to the posterior aspect of the limb, interleaved by the slashes at the ankle so as to hold the foot at right angles with the leg, moulded to the part, and then firmly bandaged to it with a cotton roller.” “Scrim” is a coarser and stronger material than cheese-cloth, and hence a smaller number of layers suffice to make a firm splint. This is a modification of the well-known Croft’s splint, and it is recommended as being very easily applied, comfortable, durable, and thoroughly efficient. (*Lancet*, Jan. 25, p. 206.)

REMOVAL OF ENLARGED TONSILS.

Prof. Kuhn, of Strassburg (*Deutsche Med. Woch.*) commends a modification of the rhino-pharyngeal forceps, the cutting portion being a pair of oval rings much larger than the jaws of the forceps commonly used; each ring being crossed with a pair of bars to prevent loss of the tissues severed. Kuhn operates under slight general anæsthesia, and without the guidance of the mirror. He usually removes the entire mass in the first attempt; but sometimes has to introduce the forceps a second time to complete the extirpation. He finds it necessary to keep his patients in bed with ice-bags around the throat for two or three days after the operation. (*American Journal*, Jan., p. 94.)

SMALL CYSTS.—Injection of Chloride of Zinc.

Dr. A. Landerer (*Deutsche Zeits.*) has for about a year, in the treatment of small cystic tumours, such as hygromata, ganglions, ranula, &c., injected a 1 per cent. solution of chloride of zinc, employing from 25 to 35 minims, according to the size of the growth. He does not use any preliminary cocaine injection. Occasionally the injection must be repeated, especially if a sufficient quantity is not used on the first occasion. The resulting symptoms are scarcely noticeable. There is little or no pain. The cyst becomes hard, and is surrounded by a dense œdema, which disappears after a few days. A Priessnitz dressing (hydropathic compress) is agreeable to most patients. During the next four or five weeks the cyst shrinks, and finally disappears entirely. Landerer has treated in this way 5 ganglions of the dorsum of the hand; a diverticulum of the sheath of the flexor tendon of the fourth finger; 3 cases of housemaid's knee; 6 cases of accessory bursæ in hallux valgus; 1 case of hydrocele in a child of six weeks; 1 case of ranula. He thinks this method the easiest, surest, and most harmless one. (*Ibid.*)

WOUNDS.—Antiseptic Treatment of.

A brief *résumé* is given in the *Centralblatt für Chirurg.* of the wound treatment adopted by von Bergmann, Mikulicz, and H. Schmid, all eminent surgeons and representatives of the advanced thought of Germany. Von Bergmann requires the patient to be thoroughly cleansed with soap in a warm bath, after which he is brought immediately to the operating table, shaved, washed with alcohol, or with ether, if necessary; and, finally, the field of operation is washed with bichloride of mercury, 1:500, and surrounded with towels wet in the same solution. The operating table is covered by a sterilized cloth. Operators and assistants cleanse their hands according to the method pursued in regard to the operative field. Everything which can come in contact with the patient—clothing, scrubbing brush, &c.—is previously sterilized by superheated steam, except the sponges, which are washed in boiled water and soaked in bichloride solution. The instruments are sterilized by carbolic lotion. For ligatures and buried sutures sublimate catgut is used. For superficial sutures, sterilized silk is employed. Since the air of the ordinary clinic room is rich in pathogenic organisms, the wound should be carefully protected during operation by sublimate compresses. Absolute hæmostasis is insisted upon, even slight oozing in connective tissue or bone cavities being checked. The wound is then irrigated with 1:2,000 sublimate solution, dried by means of sterile gauze compresses, drained, closed, and dressed with sterile gauze containing no antiseptic, absorbent cotton, and a moss pillow. These dressings are sterilized by means of heat. If the wound is already infected, it should be opened freely, cleansed, drained and counter-drained, packed loosely with iodoform gauze, and dressed with sterilized gauze and the moss pillow. The superficial dressing

is changed, but the packing is not disturbed unless it becomes wet and dripping. In that case it is removed and a drainage tube substituted for it. After operations which leave the surgeon not quite sure as to the absence of infective matter in the tissues, or in case the bleeding has not been thoroughly checked, or where the wound is in a region difficult to keep germ-free, von Bergmann commends primary iodoform gauze tamponade with secondary suture. Finally, after resections and arthrectomies performed for the cure of tubercular arthritis, the wound should be treated with ten per cent. iodoform ether, and tamponed with iodoform gauze; the latter to be removed in two days and the wound sutured without providing for drainage. In contrast to von Bergmann's treatment, Mikulicz commends, in many cases, Schede's method of obtaining healing (moist blood-clot). The ordinary chemical antiseptics are used. Sponges are discarded for wads of sublimate cotton wrapped in mull, and kept in sublimate lotion. During the operation the wound is washed out with sublimate solution every five minutes. All bleeding vessels are tied, the wound finally thoroughly irrigated, first with five per cent. carbolic solution, finally with the bichloride of mercury lotion, closed by relaxation sutures of silk or silver and a continuous catgut suture, and dressed with protective or gutta-percha tissue, ten per cent. iodoform gauze wrung out in five per cent. carbolic lotion, and a moss pillow. In two places a little space is allowed between the sutures so that any excess of blood can escape. If there is a cavity left at the operation which cannot be closed by approximation of the wound surfaces, the space for the escape of blood must be left at the highest portion of the superficial incision. The bandage is usually not changed till the wound is entirely healed. After operation upon tubercular inflammations, Mikulicz recommends iodoform gauze, tamponade, and secondary suture. Of the 160 major cases treated by this method, Mikulicz has lost only one. This patient died sixteen days after operation of consumption. In only three cases did pain and high temperature force him prematurely to change the dressing. Schmid completely closes his wounds immediately and discards drainage. Should symptoms denoting tension or suppuration appear, he removes the dressing, takes out a stitch, and opens the wound somewhat. The site of operation is covered for twelve hours with moist sublimate compresses, and is finally washed with ether and sublimate solution. In every pause of the operation the wound is covered by sublimate sponges. There is no irrigation and the minimum of sponging. Most careful attention is given to checking the bleeding, after which the wound is flushed with bichloride solution, dried, dusted lightly with iodoform and approximated throughout its whole extent. A compression sponge is now applied, iodoform, mull, and a moss pillow. The dressing is completed by a pressure bandage very firmly applied, which can be loosened if pain-

ful in twenty-four hours. In wounds where pressure is not necessary, salicylated collodion painted over the skin sutures will prove a sufficient dressing. For infected wounds, Schmid advises free opening, drainage, by iodoform gauze, and antiseptic poultices. (Ibid, Oct.)

AFFECTIONS OF THE SKIN, ETC.

ACUTE URTICARIA.—Treatment of.

The use of medicines is somewhat limited by the fact that an attack of acute urticaria lasts only a short time, on the other hand we have no remedies that have any effect either on its intensity or in changing its course. We can only act on the symptoms, and it is principally the itching that demands our attention. This troublesome sensation is sometimes so violent as to prevent sleep. We, therefore, try to procure sleep by artificial means, and for this purpose make use of ordinary sleeping remedies. But we are still called upon to furnish some relief to the itching. We have, however, means of acting permanently on it. The use of applications of a 2 per cent. solution of carbolic acid is the best, which are allowed to remain on for some time. But these only relieve the itching from 10 to 15 minutes, then to return with its former intensity. The simple action of cold on the affected side gives some relief. A very elegant preparation is the aqua laurocerasi in almond emulsion. A popular remedy, one that is much used, and that you can occasionally employ, is lime juice, or slices of lime or lemon laid directly on. But even with these means, the relief obtained is only for a few minutes. The use of warm baths is decidedly unadvisable, as they will only cause the rash to come out with redoubled intensity. As a hypnotic I place sulphonal in the front rank. (Prof. Otto Kahler, Medical Press and Circ., March 19, p. 292.)

ALOPECIA AREATA.—Permanency of Cures in.

We often encounter so much discouragement in the treatment of alopecia areata, that it may be worth while to mention some facts illustrating its complete and permanent cure. My own experience has been that in some of the best cases of apparent cure a relapse has, after a year or two, taken place. In more than one case in which a patient who had been almost wholly bald grew an excellent head of hair, I have seen the whole of it again fall off a year or two later. It may be that I somewhat underrate the average success of treatment, since most of our patients are lost sight of as soon as the cure is well advanced. It is only by accident that we are made acquainted with the results after long intervals. The cases which have induced me to make these remarks are the following, which came under my notice within a few days of each other. In the first, a gentleman of about 50, who was under my care for eczema, told me that when about 20, he had been for a year or two troubled with large bald patches on his head. For these

he was for long under the treatment of the late Mr. Startin, who blistered him repeatedly. After much disappointment, the hair grew again perfectly, and during the thirty years which have elapsed there had been no relapse. In the second case, a lady, of 35, who had a single bald patch, of only two months' duration, on the top of her head, told me that a brother, who was a year younger than herself, had, at the age of 14, suffered from many such patches on his head. Her mother, who was with her, confirmed this statement, and said that the patches were smooth and glossy, and that there was never any suggestion of ringworm. The boy's case took several years of treatment, but the cure was at length complete, and there had been no tendency to relapse since. (Mr. J. Hutchinson, *Archives of Surgery*, Oct., p. 163.)

DUHRING'S DISEASE.—A New Variety of.

Under this caption Unna (*Monatshefte für Dermatologie*) gives his views concerning the dermatitis herpetiformis of Duhring, which he would define as "a non-hereditary, chronic nerve-disease of the skin, not prejudicial to the general health, tending to regular recurrence at variable intervals, more or less universal distribution, and lesions of an erythematobullous type." In the diagnosis, first, relapses are looked upon as being absolutely indispensable, and in cases where these do not occur the author would hesitate to make the diagnosis of Duhring's disease. The second most important group of symptoms is that comprising itching and burning (the so-called "paræsthesias" of the author). Thirdly, the polymorphous character of the eruption is a striking feature; and, fourthly, the good general health of the patient is a point to which attention is called. Unna suggests the name "hydroa" for the disease in place of that given by Duhring, and, further, would make four varieties, viz.: H. grave, H. benign, H. gravidarum, and H. puerorum. The last named is described at length as a new variety, and is characterized by beginning in the early years of life; shows less tendency to polymorphism—being mostly papular—and is accompanied by pain rather than itching. Five cases are referred to. (*American Journal*, Jan., p. 98.)

ECZEMA.—Professor Pick's Treatment of.

Professor Pick, the introducer of the gelatine preparations subsequently modified by Dr. Unna, thus describes his mode of treating eczema. In general terms eczema may be said to exhibit the following stages—the papular, vesicular, and oozing, as those of advance, the scaly as that of commencing retrogression. The so-called impetiginous or pustular stage is due to the deposition of micro-organisms, which determine the transformation of the exudation into pus. It is therefore a septic complication. There are two indications which we must satisfy in treating an eczema. We must protect the diseased portion of skin from external influences, and by suitable antiseptic measures we must prevent any local infection. For

the moist stages of acute eczema he uses his salicylic soap plaster, for the dry his sublimate gelatine. The formula for the plaster is either—*R.* Emplast. saponat. liquefact., 100·0; acid salicylic, 5·0. or *R.* Emplast. saponat. liquefact., 80·0; olei olivarum, 20; acid salicylic, 2·5—when a more adhesive and weaker plaster is indicated. Both are to be spread thickly on calico. The plaster, cut into strips, is firmly applied to the diseased parts, and may remain undisturbed for some days. The patient complains of burning pain soon after the plaster has been laid on. This shortly passes off, and is all the more readily borne, because with the application of the plaster the vexatious itchiness disappears. The first dressing must be changed on the third or fourth day should the discharge be abundant. Any subsequent one may continue unmoved for eight days or longer. In his out-patient department he frequently finds that those of the poorer class who live some distance from Prague sometimes do not return for a fortnight or three weeks, and a second application is not needed. As a rule the dressing need not be changed till the annoying itching has reappeared, and this at each dressing is longer and longer of showing itself. This plan suits widely-diffused eczemas, and he has never seen any evidence of absorption, as is so apt to occur, when under similar circumstances carbolic or sublimate dressings are employed. When in this manner the scaly stage has been reached, the time for the gelatine has come, the formula for which runs as follows:—*R.* Gelatina alba, 30·0; aq. distillat., q. suff. Macera per aliquot horas, deinde liquefac in balneo aqua, et evapora ad pondus, 75·0. Adde—Glycerini, 25·0; hyd. perchlorid., 0·05. Antea in pauxillo aqua solut. Effunde in forma disci. This gelatine dressing is so elastic that on the face the movements of expression are not interfered with, while it is quite transparent. (Dr. W. A. Jamieson, *Edinburgh Medical Journal*, April, p. 972.)

ECZEMA.—Treatment by Resorcin Compresses.

Unna points out that till quite recently eczema was regarded as occasioned either by internal disorders or by external irritants. It is constantly, however, becoming more evident that in the greater number of cases we have to do with a parasitic affection. There are already, he states, a variety of types of eczema differentiated, and it is to be expected that for each a special form of cutaneous parasite will shortly be discovered. In future, in his opinion the conception of an eczema will be solely that of a parasitic catarrh of the skin. This will simplify the treatment. One of the best known and most widely diffused of such types is seborrhœic eczema. And this in individual cases can be cured by sulphur, resorcin, chrysarobin, or pyrogallic acid. Of these resorcin causes least of all any local or constitutional secondary effects. There is no stage, no part of the body, no individual condition of skin, no age, no complication of seborrhœic eczema, which some mode of using resorcin will not be found to suit. There is one way of

employing it which combines intensity of action and certainty of result, with great simplicity of application. He prescribes—R Resorcini, glycerini, āā 10·0; sp. vini, 180·0. This is diluted when used with four times as much water. A thin layer of cotton wool is dipped in this lotion, applied to the part, covered with some impermeable material, as gutta-percha tissue or oiled paper, and secured with a bandage. Under this treatment the horny layer swells, and if the dressing is discontinued during the day, some oily material must be applied. Unna recommends his zinc-oxide salve pencils. The only contraindication is the rare resorcin idiosyncrasy when resorcin irritates. This has only occurred ten times in 2,000 cases treated with resorcin. In these the resorcin must be discontinued, else the skin becomes painful and swells; and if still persisted in, large blisters form, and the œdema may spread from the point of application over the whole body.—(*Monats. für Dermatologie.* Dr. W. A. Jamieson, Edinburgh Med. Journal, Dec., p. 576.)

ERYSIPELAS.—Treatment of.

According to the *Therapeutische Monatsch.*, Sept. 1889, the treatment of erysipelas by germicides is growing in favour. Carbolic acid is too irritating. Koch, of Vienna, uses creolin, his formula is one part of creolin, four of iodoform and ten of lanolin. This is spread on the erysipelatous area, and an inch or two beyond its boundaries, and covered with gutta-percha tissue. The theory is that iodine is set free in the combination, and that it, as well as creolin, acts as a germicide; the results appear to be good. (*Montreal Medical Journal*, Dec., p. 427.)

ERYTHEMA NODOSUM AND ALLIED ERUPTIONS.

Baumler, of Freiburg (*Wiener Klin. Wochenschrift*), who believes erythema multiforme and erythema nodosum to be forms of the same disease, discusses erythema nodosum and its possible causes, and expresses the opinion that it is to be regarded as an infectious disease, a view that has of late years been gaining ground in Germany and France. As reasons, the author gives—the often severe general character of the affection; the high, long-continued fever of a remittent type; the inflammation of the skin and mucous membrane sometimes leading to the formation of pustules; the affection of the joints, sheaths of the tendons, serous membranes, and endocarditis. With such manifestations the erythematous or nodose varieties of the disease may bear the closest resemblance to other well-known infectious diseases, such as varicella, variola, and syphilis, with which they may be (and have been) confounded, as Hutchinson and Lewin have in former years shown. Reference is made to the observations of Uffelmann and Oehme, in 1876, who attempted to show some relation between erythema nodosum and (the now recognised infectious disease) tuberculosis. (*American Journal*, Jan., p. 99.)

HAIR.—Effect of Pilocarpin upon the Colour of.

Dr. D. W. Prentiss, in a paper read before the American Medical Association in June, 1889, makes a careful study of the evidence going to prove that the hair of man and the lower animals and the plumage of birds can undergo a change of colour within a short space of time. To a case which he had previously reported in which the use of pilocarpine had rendered the hair black, he adds another very similar instance. The woman, seventy-two years of age, was given the fluid extract of jaborandi for the relief of a dry, harsh skin, resulting from contracted kidney. Twenty to thirty drops, several times daily, were taken during a period of sixteen months. The patient's hair and eyebrows had been snow white for twenty years, but about a year after the pilocarpine treatment had been begun it was noticed by the nurse that the eyebrows were growing darker, and that the hair of the head was darker in patches. At the time of death these patches were quite black. The author discusses at some length the question of whether this change in colour takes place in existing hairs, or whether it is necessary that new pigmented hairs shall grow in place of the old ones, which have fallen out. He considers it as proven beyond a reasonable doubt that the change may take place in hairs already existing, and believes that pilocarpine at times has the power in some manner to bring about this change. (*Journal of American Medical Association*, Dec. 21; *American Journal*, Feb., p. 181.)

HAIR RESTORERS.—Lassar's Treatment of Alopecia.

Lassar adheres to the opinion formerly expressed, that alopecia prematura and areata are both communicable diseases, and are best cured by parasiticide remedies. Indeed, he holds that premature baldness is a misnomer. No hairs should fall from a well-kept and healthy scalp. There is nothing in human beings corresponding to moulting in animals. That which resembles it is nothing else than the regeneration of hairs lost pathologically. In treatment, he advises that the scalp should be washed by an experienced hand for ten minutes daily for six to eight weeks, afterwards less frequently. In doing this a strong tar soap, such as Berger's tar soap, is the best to use. The scalp is to be well soaped, the hair for this purpose being divided into as many locks as possible, and then the soap washed quite away by means of an irrigator or small watering can, first with warm, afterwards with cold water. The cold douche prevents chill. After gentle drying, the head is now rubbed with—*R. Sol. hyd. perch., 0·5 : 150·0; glycerini, sp. cologniensis, aa 50. M.* Then rubbed dry with absolute alcohol with half per cent. of naphthol, and, finally, pretty freely with—*R. Acid salicylic, 2·0; tinct. benzoin, 3·0; ol. pedum tauri, 100·0.* If this procedure is persisted in from day to day, a satisfactory result will be attained in the large majority of cases. (*Dr. W. A. Jamieson, Edinburgh Med. Journal*, Dec., p. 573.)

LEUKOPLAKIA.—Treatment of.

Rosenberg reviews the measures which have been adopted for the treatment of leukoplakia, and comes to the conclusion that none of those previously recommended are entirely satisfactory. He has found balsam of Peru to check the pain and to exert a favourable effect on the healing of the parts which are denuded of epithelium, and at the same time to clear up cloudy epithelial patches, and to cause deposits to disappear. In using balsam of Peru two points are to be attended to. One, that it is not possible in most cases to remove the affection by its means in a few days, or even in a few weeks, but, especially in cases of long standing, a correspondingly protracted application is necessary. Another, that it is essential that a pure preparation be employed, the drug being extensively adulterated. When there is much pain, and when fissures are present, it is to be applied by means of a fine brush. When thick deposits are present and the parts are not sensitive, a brush with stiff bristles must be selected, so as to act in some degree mechanically. After the application to the mucous membrane a slight burning sensation is experienced, while the saliva flows freely. The patient must be warned not to permit the balsam to be washed off by the saliva. The application should be made by the patient himself from one to three times a day, and the drug should be kept for at least five minutes in the mouth. He cites a number of instances, some consequent on syphilis, some not, treated this way successfully. So far there have been no recurrences, but he intimates that while Peruvian balsam locally applied can cause the disappearance of patches of leukoplakia, it can have no effect on the cause of the complaint; this should, therefore, in all cases be sought for, and if found, removed. (Dr. W. A. Jamieson, *Ibid.*, Dec., p. 575.)

LUPUS VULGARIS.—Treatment by Balsam of Peru.

Saalfeld, of Berlin (*Deutsche Med. Wochens.*), in view of the favourable results obtained by Landerer in the treatment of various tuberculous affections with balsam of Peru, was led to employ it in lupus vulgaris. The crusts are to be removed with soap and water and the remedy applied twice daily with a brush. The results were, up to a certain point, satisfactory; the author believing that the balsam, more than any other known local remedy, as it were, prepares the disease for the more radical methods of treatment, such as scraping and the galvano- and the thermo-cautery. (*American Journal*, Jan., p. 99.)

LYMPHADENOMA.—Treatment of.

At a recent meeting of the Paris Surgical Society, M. Reclus related the case of a young man who was the subject of lymphadenoma, a large mass of glands occupying both sides of the neck from the mastoid to the clavicle, and extending posteriorly beneath the trapezius muscle and causing some dyspnoea. There were no swellings in other situations, no signs of tubercle, and no leuco-

cytosis. As extirpation was out of the question, arsenical treatment was vigorously pushed, commencing with five drops of Fowler's solution daily, which was increased by two drops every day, when also injections (amounting to ten drops daily) were made of the same solution into the hypertrophied glands themselves. The injections produced small abscesses, which healed spontaneously; and at the end of two months, when as much as twenty-five drops per diem were being taken, and a notable diminution had taken place in the swellings, the treatment was suspended. It was, however, renewed from time to time, and finally replaced by phosphide of zinc, the result being most satisfactory, only two or three barely perceptible nodules remaining at the site of the previous tumour. M. Reclus gave particulars of two other cases similarly treated with success, and also of three in which the result was unfavourable. Although, then, he pointed out, arsenic could not be said to be absolutely specific, yet it is certainly very efficacious in lymphadenoma, of which clinically there are two forms—the benign and the malignant. Surgical interference, he thought, was harmful, in that it was rapidly followed by recurrence, as shown by Verneuil, Trélat, and Bouilly. M. Quenu admitted the good results of the treatment, but pointed out that the diagnosis was uncertain, and that under "lymphadenoma" often were included very different conditions. M. Routier mentioned instances of benefit from arsenic; in one case the disease was only temporarily arrested. M. Verneuil also alluded to the difficulty of precise diagnosis, and considered that excision was permissible in the benign cases of simple glandular hypertrophy. M. Terrier said it was impossible to diagnose at first between a lymphadenoma and a simple hypertrophy, unless recourse were had to microscopic examination and inoculations, and that early excision might not be followed by recurrence even of lymphosarcomata. M. Trélat said that glandular tissues which were not secondary, cancerous, or syphilitic were either tubercular or lymphadenomatous, the former in the great majority of cases. Benign lymphadenoma was the same as simple hypertrophy, and should be excised; whilst the malignant form, which is rapidly generalised, should not, he considered, be so treated. (*Lancet*, Jan. 18, p. 143.)

PHTHIRIASIS PUBIS.—Treatment of.

At the St. Louis Hospital, Paris, the treatment for pediculi pubis being discussed, Dr. Besnier remarked that it was an easy matter to get rid of pediculi vestimenti, and even of lice in the head, while those which inhabit the pubic region are relatively difficult to destroy. An excellent method consists in giving a bath of an hour's duration, the water containing ten grammes of corrosive sublimate which has been dissolved in alcohol. The old-time frictions with mercurial ointment have been almost entirely abandoned,

because of the irritant phenomena to which they may give rise. When gray ointment is employed it is best not to leave it upon the skin for more than two hours, for fear of producing an erythema, pustulation, and salivation. At the present time it is preferable to apply, morning and night for two or three days, a lotion containing corrosive sublimate dissolved in alcohol, in the strength of 1 to 200 or 1 to 300. The hairs are then to be washed with hot vinegar, and the nits, thus softened, are readily removed with a fine comb. It is furthermore necessary to exercise a close scrutiny for several days to prevent a recurrence. Dr. Hallopeau employs only frictions with camphorated alcohol for the cure of all forms of pediculi. In three days he thus secures a complete cure. Professor Fournier insists in his clinics upon the frequency of pediculi pubis in the lower classes, where their presence is almost always ignored, showing how little itching they occasion in the majority of cases. As soon, however, as we inform the patients of their condition they are, on the other hand, much annoyed by the itching. Another topical application in phthiriasis and in pruritus is phenic acid. (N. Y. Medical Record, Nov. 2, p. 484.)

PRURITUS SENILIS.—Treatment of.

When pruritus senilis is not complicated with any other dermatosis, M. Besnier recommends the following treatment: (1) The employment of starch-baths; (2) the itching parts are bathed every evening in water of 40° C, to every litre of which is added the following solution:—*R.* Acidi carbolic, 10 grammes; aceti aromatici, 500 grammes. (3) Then the bathed parts are powdered with the following compound:—*R.* Amyli, 90 grammes; bismuthi salicylatis, 20 grammes; or with this powder: *R.* Acidi salic. subt. pulv., 20 grammes; amyli, 180 grammes. Through light rubbing this powder is made adherent. (Practitioner, Dec., p. 455.)

PSORIASIS.—Ointment for.

The favourite prescription of Mr. Jonathan Hutchinson for psoriasis is:—*R.* Acid. chrysophanic., gr. x; liq. carbonis deterg. (Wright's), \mathfrak{m} x; hydr. amm. chlorid. gr. x; adip. benzoat., \mathfrak{z} j. *Misce fiat unguent.* At night the patient should wash the diseased surfaces free from all scales, then standing before a fire rub on the ointment, devoting, if possible, half an hour to the operation. This proportion of chrysophanic acid is not irritating, and stains the linen but slightly. With some cases even a weaker chrysophanic ointment is entirely sufficient. Internally, Mr. Hutchinson prescribes arsenic, though he is not convinced that it is an important adjunct. (Medical News, Oct. 26, p. 464.)

PSORIASIS.—Potassium Iodide in.

Gutteling, following Haslund, treated experimentally twenty-two cases of psoriasis with full doses of potassium iodide. The highest dose per day was 850 grains; the same patient taking in all, in the

course of the treatment, 115 ounces. The average dose was 150 to 300 grains a day, and the observation was made that if such doses failed to benefit, a larger quantity failed likewise. In five patients it was, on account of distressing iodic symptoms, necessary to discontinue the remedy. In several the disease remained stationary and uninfluenced after a certain point had been reached. In five cases complete recovery resulted. Iodide acne was noted in many of the cases; in one purpura, and in another cedema of the legs, and in another rheumatic pains in the limbs. Albuminuria was not observed, nor were any serious heart symptoms noted. The patients, it may be added, were, excepting the skin eruption, free from disease. (*American Journal*, Jan., p. 97.)

SCABIES.—Balsam of Peru and Sulphur in.

The patient is to soak himself thoroughly in a bath at 100° F., in which there has been dissolved one pound of washing soda, and while in the bath he is to rub himself thoroughly with some good soap that makes an abundant lather, like Pears' unscented soap. Having dried the surface, he is to rub in an ointment, consisting of one drachm each of balsam of Peru and milk of sulphur to each ounce of vaseline. This is to be left on all night. He should have ready clean bedding and clothes. There is no necessity for internal treatment, but drinking liquor of any kind should be avoided, as the consequent increase in the circulation would add to the irritability of the skin. It is also wise to avoid eating anything which might produce an erythema. (*Dr. R. W. Taylor, Medical News*, March 1, p. 230.)

SEBORRHŒAL ECZEMA.—Treatment.

According to the *Monatschrift für Dermatologie*, Dr. Unna's favourite formula for the treatment of seborrhœic and other varieties of eczema, is a solution of three drachms of finely powdered resorcin with an equal quantity of glycerine, in six ounces of alcohol, diluted with four times the quantity of water or chamomile tea. A thin layer of cotton-wool well moistened with the solution is applied, covered with some waterproof material, and fastened by a bandage. These applications are particularly useful when the treatment is prolonged, or when it is carried out by night. They are, of course, impossible in general eczema of adults, but not in that of infants. Dr. Unna describes an especially important effect following the application of resorcin, viz., a swelling of the epidermis, by which all painful fissures are healed in a single night. In order to insure healing, he advises that the skin should be anointed after the removal of the bandage, and that washing with soap should be avoided. A few people suffer from a resorcin idiosyncrasy, which necessitates the immediate cessation of this treatment, and the application of powder to the affected parts. This idiosyncrasy is, however, very rare, as he has only met with it ten times among two thousand cases. (*Med. News*, Nov. 2, p. 487.)

VENEREAL AFFECTIONS.

ACUTE GONORRHŒA.—Nitrate of Silver Injections in.

Dr. L. Friedheim, assistant in the clinic of Professor Neisser at Breslau, who has made a large number of observations with several drugs, such as zinc, lead, bismuth, tannin, various preparations of mercury, permanganate of potash, creolin, &c., to test their astringent effect as well as their capacity for destroying gonococci, is equally dissatisfied with all the usual drugs. They all had either no permanent effect in destroying gonococci, or they irritated the mucous membrane to such an extent that their administration had to be stopped. Nitrate of silver alone acted quite satisfactorily. The author reports on 318 cases treated with this drug, 237 of which proved its anti-bacterial effect satisfactorily. Unfavourable results were chiefly obtained with out-patients who lived in unsatisfactory circumstances. The following is the *modus operandi* in Professor Neisser's clinic:—Every acute gonorrhœa is immediately treated with an injection of nitrate of silver of the strength of from 1 in 4,000 to 1 in 2,000. The discharge generally increases at first, becoming thicker and more purulent, but very soon decreases and becomes thinner, whiter, and more epithelial. The gonococci decrease in a remarkably short time, and sometimes entirely disappear in a few days. The injections are first administered from four to six times a day, and are then reduced to one or two in the twenty-four hours, when at the same time a mild astringent like zinc or boracic acid is injected; but even after entire cessation of the discharge, the nitrate of silver is still injected once a day for many weeks. The proper regimen must be followed for an equally long time. The injections are administered even when complications occur, especially epididymitis. (Lancet, Feb. 15, p. 365.)

CHRONIC GONORRHŒA.—Therapeutics of.

Dr. Wilhelm Fleiner, after mention of the unsatisfactory results obtained in the treatment of chronic gonorrhœa, asserts (*Münchener Medizin. Wochenschrift*) his belief that the foundation for successful management of these cases has been laid by the investigations of Neisser, Bumm, Deichler, and others, into the effects of gonococci upon the tissues, and by the direct inspection of the canal by the urethroscope. These teach us, according to Fleiner, that the gonococci, having gained access to the urethra, diffuse themselves from the fossa navicularis backward, penetrating the mucous membrane, setting up a catarrhal inflammation, causing stenosis, &c. If they are not destroyed by injection or other means during the first week then inflammation becomes chronic. Unna then treated it with bougies coated with the following mixture: Nitrate of silver, 1 part; white wax and Peruvian balsam, each, $2\frac{1}{2}$ parts; cacao butter, 95 parts. Caspar used a similar mixture, combining his silver nitrate with lanolin and olive oil, and applying it by sounds

grooved longitudinally. Fleiner uses an ointment very like that of Unna, but omitting the balsam, for which he gives the following formula: *R.* Argenti nitrat., 1.0; ceræ flav., 2.0; butyr. cacao, 17.0. A polished nickel-plated steel sound is used. It is first warmed, then coated with the ointment by drawing it through the mass, which solidifies promptly upon the surface of the sound, and melts again when introduced into the urethra. The immediate result is increased secretion. Forty-one cases, in which there was more or less pronounced urethral contraction, were treated in this manner, and the majority were cured in from four to six applications. In only eight cases were more than ten treatments necessary. (*American Journal*, Jan., p. 89.)

SYPHILIS.—The Abortive Treatment.

In my judgment no good is produced, as a rule, by the internal use of mercury in the primary stage, for at that period it tends to render the course of the disease less orderly; very often leaves the existence of syphilis in a state of doubt; it does not prevent or lessen the severity of secondary manifestations, and, though it may retard them, it really often renders them more severe. Whether syphilis is essentially caused by a microbe we are, as yet, far from certain, but we know quite clearly its ultimate pathological processes. It is a chronic, infectious disease, manifesting itself in the development of a low grade of granulation tissue which tends to reproduction in greater or less degree in any and all of the tissues and organs of the body. I think it can be stated, without fear of contradiction, that the malign influence of syphilis upon the human organism is directly due to the infiltrations of this tissue, to the irritative and inflammatory conditions incident to the hyperæmia which accompanies their proliferation, and last, but far from least, to the secondary destructive and atrophic changes which take place in the healthy tissues in the various metamorphoses of these specific new growths. Clinical and pathological observations have shown that mercury possesses a specific power over this low order of infectious tissue, and it is very probable that its real action is in the production of its fatty degeneration and subsequent absorption. In my judgment syphilis is not mature until the date of secondary manifestations, when the newly formed, young, round, infecting cells are proliferated in vast quantities and are thrown into the general circulation, and by it carried throughout the body. When this has occurred, I think syphilis may be said to be "ripe;" then, and not till then, we have something tangible to treat. At this time, mercury introduced into the organism can exert its marvellous powers in destroying this, then, young, nascent, infectious material, and in causing its absorption. The foregoing clinico-pathological facts have influenced me in my opinion that it is the wisest policy, as a rule, to wait until the onset of the secondary stage before we begin a mercurial course. Further than this, my opinion has been strength-

ened during more than twenty years by the observation of the progress and ultimate result of cases in which it has been necessary to begin treatment in the primary period for the reasons outlined in the footnote. In some instances, by means of a prolonged treatment, a cure has been effected, but in many a disorderly course, attended with severe and extensive manifestations, often with much cachexia and even with tertiary lesions, has been observed. As a prophylactic measure, or an abortive treatment, therefore, it is my opinion that medication begun in the primary stage of syphilis is a failure. (Dr. R. W. Taylor, *Med. News*, Dec. 7.) [See pp. 376-8.]

SYPHILIS.—Salicylate of Mercury in.

Dr. Hahn, of Bonn (*Therapeutische Monatshefte*), claims excellent results in the treatment of syphilis with the hypodermatic injections of the salicylate of mercury. He uses it suspended in paraffin oil, according to the following formula of Weisser: \mathcal{R} . Hydrarg. salicyl., gr. xxij; paraffin oil, f \mathfrak{z} iijss. M. As the salt is deposited, the bottle containing the mixture must be thoroughly shaken before using. The needle should be kept in paraffin oil, and carefully cleaned before and after the injection. On beginning this treatment he injected two minims of the mixture every eighth day; but as this seemed too large an amount, he reduced it to one minim every fourth day. The injections were made deeply into the glutei. Thirty-eight patients were thus treated, and Dr. Hahn's conclusions are that (1) all manifestations of the disease are favourably modified, and that in the earlier stages one or two injections cause improvement; (2) it is more efficient than injections of calomel in oil; (3) it produces no local irritation nor symptoms of mercurial poisoning, if not used in larger amounts than indicated above. As yet no observations are forthcoming on the influence of the drug in preventing relapses. (*Medical News*, Nov. 30, p. 610.)

SYPHILIS.—Subcutaneous Injections of Mercury in.

Professor Leloir and M. A. Tavernier record (*Jour. Maladies Cut. et Syph.*) the results of their experience with hypodermatic injections of, *a*, calomel and oil of vaseline, 1 to 12 (875 injections); *b*, yellow oxide and oil of vaseline, 1 to 12 (642 injections); and "gray oil," purified mercury, 4 parts, ethereal tincture of benzoin, 1 part, oil of vaseline, 8 parts (56 injections). The retro-trochanteric region was used; one-half of a syringe-ful (Pravaz) was used for the first two, one-third for the last formula. The intervals were eight or nine days. They note the following complications observed in the series of 1573 injections: *a*, local pains, sometimes radiating, preventing movement, lasting from one to nine days; *b*, paresis of the lower limbs; *c*, vertigo, headache; *d*, occurrence of buccal mucous patches four or five days after the injection; *e*, local mercurial irritation around the point of injection; *f*, mercurial stomatitis; *g*, diarrhoea simple or bloody; *h*, cutaneous swellings, hard, or sometimes vesicular, not going on to suppuration. As to the value

of these injections they come to these conclusions: 1. Treatment of syphilis by subcutaneous injections should be reserved for erythematous eruptions and consecutive syphilides of the tegumentary surface. 2. The method should be employed when it is desired to make these eruptions disappear with extreme rapidity. 3. It is especially applicable to hospital patients—i.e., to those who can be kept in bed. 4. It has but a slight action on the syphilides of mucous surfaces. 5. It has no influence in preventing early relapses. 6. In many cases it fails when inunctions succeed. 7. It should not be employed in cerebral, spinal, or visceral syphilis, nor in the syphilis of pregnant women, nor in infantile syphilis. Its only advantage appears to be its rapidity of action. (*American Journal*, Dec., p. 622.)

SYPHILIS.—Treatment by Quinine and Mercurial Injections.

Denenicki has treated 178 cases of syphilis by this method, reporting eight observations in detail in which quinine seemed to occasion the greatest benefit, while in four this remedy was without influence. He believes that quinine is capable of rendering great service where the patients are either greatly reduced or where the temperature and weight are subject to great oscillation. In other cases quinine is useless. He gives from 15 to 22 grains a day of quinine, and claims that, if the cases be properly selected, the general state and appetite are improved, the weight of the body increases, the temperature decreases. Ulcers clean off and commence to cicatrize; and if stomatitis and ptyalism have been present, they will diminish. In cases where quinine is used with mercury, it is necessary to increase the amount of the latter drug given daily. The cases in which he found improvement following the administration of quinine were not due to any complication with the malarial element. (*Therapeutic Gazette*, Jan., p. 53.)

SYPHILITIC MYOSITIS.

J. Neumann (*Ctrbl. Klin. Med.*, 1888) says:—The muscles that may become diseased through syphilis include the external sphincter of the anus. This muscle is affected oftener even than the biceps. The affection sets in early in the stage of syphilis—much earlier than the affection of other muscles. It manifests itself by severe pain and tenesmus during and after defæcation. In severe cases the pain may last for hours and days. It occurs much more frequently in women. For the treatment of these cases the author advises general as well as local treatment, even if all the symptoms of syphilis, excepting this one, have disappeared. If, in spite of this, the pain persists, sphincterotomy should be done. The histories of six cases are given; in three of these sphincterotomy was done and the excised muscular tissue was examined microscopically. The changes affected principally the vessels of the perimysium, the walls of which were surrounded with granulation cells, and the nuclei of the sarcolemma were very much increased. (*N. Y. Med. J.*, Feb. 1.)

AFFECTIONS OF THE EYE AND EAR.

ARTIFICIAL VITREOUS BODY.

The method of dealing with lost eyes, by abscising the cornea with a narrow rim of sclerotic, clearing out the contents of the globe, and inserting a hollow glass sphere, has now been before the profession for nearly three years, and has been put upon its trial by a fair number of medical men. For the method of procedure and a great many useful hints I would refer my readers to the communications of the author of the operation, Dr. Mules, in vol. v, *Trans. Ophth. Soc.*, and *British Med. Journal* of Dec., 1885, and June, 1887. (See *Retrospect*, vol. xciii, 1886, p. 366.) What we want now is evidence in regard to the condition of these eyes after an interval of, say, two years since the operation, and it is for the furtherance of this object I desire to make this communication. I have personally inspected as many of my earlier cases as I could trace, and show to-day three which have been done over two years. My first case, done nearly three years ago, writes to say his eye keeps perfectly well, but he is unable to present himself. This patient was shown by Dr. Mules at the Ophthalmological Society in 1885. Up to the end of 1886 I find I have performed the operation eleven times, and in only two of these has the glass sphere come out, but I must confess that one of these was considered a very satisfactory example of the completed operation, and was shown to the staff of the Liverpool Eye and Ear Hospital. In the case of the other, the globe escaped a few days after the operation, and has no bearing on the permanence of the operation. I believe the fate of the operation will depend in a great measure upon the permanence of the result, and I hope that others will look up their earlier cases, and record their experience in regard to this point. I think there can be no doubt that these cases I show are cosmetically a very great advance upon enucleation, or even simple evisceration, and entirely agree with Dr. Mules that the insertion of the glass sphere in nowise increases or diminishes the pain after evisceration. In regard to the reaction, it is no doubt occasionally alarming, and always rather severe, nor have I observed that the introduction of a drain of horsehair or other material has done anything towards mitigating this. As regards the performance of the operation itself, it ought to be done rapidly, and with as little violence as possible; the inside of the sclerotic should be very gently cleaned, and the glass sphere introduced as soon as this is done, without waiting for the bleeding to stop, and the wound should be firmly closed with thick silk sutures passed through both conjunctiva and sclerotic. "Thin catgut" is, in my opinion, quite unsuitable for this purpose, as it gives way too soon, and Dr. Mules also now prefers thick silk. I now complete the entire operation in ten minutes, and I have done it in eight minutes. (Dr. Hill Griffith,

Surgeon to the Manchester Royal Eye Hospital; British Medical Journal, Feb. 8, p. 293.)

ASTHENOPIA OF NEURASTHENICS.

The failure of accommodative power, after diphtheria, in the puerperal state, or in association with miscarriage or disturbed menstruation, and also that to which I desire to draw more particular attention, the asthenopia of neurasthenics, I take to belong to the same category. In all there is a faulty blood-metabolism and consequent neuro-muscular debility, and it would seem that unstriated muscle suffers seriously from such defective hæmopoiesis, the heart and arterial muscles exhibit lack of tone, the pulse is soft, often irregular, and palpitation is common; the muscular fibre of the intestines suffers, and chronic constipation is a frequent concomitant; the ciliary muscle, with or without associated affection of the iris, is similarly weakened, and the amplitude of accommodation is seriously restricted. The treatment of such cases is happily hopeful and uniformly successful; that which is general is most important; and if the health has seriously suffered, as is generally the case, and emaciation has been going on, the systematic treatment which Weir Mitchell has taught, is, I am satisfied, of paramount value. For the eyes themselves I give weak eserine drops (half a grain to the ounce); insist upon entire abstinence from all close work; and when the general health begins to improve, allow reading or work for a definitely limited period daily with progressively weaker convex glasses, and later stimulate the ciliary muscle by the gymnastic exercise of overcoming progressively increasing strengths of concave glasses. The latter, of course, are not to be used as spectacles, but a 6, 7, or 8 D. concave is carried in the pocket, and distant objects occasionally focussed through it. The ammoniated citrate of iron with the addition of strychnine seems to accelerate the cure. (Dr. W. J. Collins, Royal London Ophthalmic Hospital Reports, Dec., p. 328.)

AURAL COMPLICATIONS IN SPECIFIC FEVERS.

At the Harveian Society, on Jan. 2, 1890, Dr. Hill remarked that more than 50 per cent. of the cases of chronic ear diseases commencing in early life were traceable to the aural complications of fevers. The somewhat higher percentage observed before Meyer demonstrated the importance of naso-pharyngeal obstructions were doubtless due to the fact that the exanthemata are potent exciting factors in the induction of adenoid overgrowth of the pharyngeal tonsil in those of "lymphatic temperament," and indirectly of ear lesions, and cases now rightly attributed to post-exanthematous "adenoid growths" were formerly classed amongst the direct aural complications of acute fevers. After detailing English and foreign statistics dealing with the frequency of ear symptoms in the course of scarlet fever, measles, whooping-cough, mumps, and other states,

the destructive nature of these complications on the membrana tympani and ossicula, if untreated at the time, was pointed out and contrasted with the rapid recovery from perforation, discharges, and impairment of function when similar conditions were not neglected, but treated *secundum artem*. In measles, pneumonia, and pertussis, in which the inflammation spread up the Eustachian tube, the otitis could often be prevented, and nearly always arrested or limited to the non-suppurative variety by appropriate naso-pharyngeal and inflation treatment. If neglected, suppuration of the middle ear resulted from tubal obstruction and accumulation and retention of tympanic secretion; the tendency to this acute suppurative stage was more marked when the middle ear became involved in scarlet fever, small-pox, and diphtheria, and if unrelieved by immediate incision of the membrane on the onset of pain or evidence of intra-tympanic accumulations, the destructive processes above alluded to resulted, and frequently also involved the labyrinth. If on establishing proper drainage, together with frequent syringing of the meatus with antiseptic lotions and inflation by the tube, the pain was unrelieved, the application of leeches or incision for mastoid inflammation, and of Leiter's continuous cold coil for less limited pain, was recommended. The use of internal anodynes also afforded relief in some instances; but if a thorough otological examination was not made and appropriate surgical measures adopted, the mere relief of pain often lulled to false security, whilst irreparable destruction was going on in the delicate auditory organ. In cerebro-spinal fever, mumps occasionally, and in typhus, the labyrinth was usually primarily involved. Such a complication might be aggravated by such remedies as salicine or quinine, which were best avoided in acute aural disease; iodide of sodium internally, or pilocarpine hypodermically, being the most serviceable drugs. In conclusion, Dr. Hill pleaded that aural symptoms should invariably be looked for early in the course of fevers, in the same way that the thoracic and renal organs were watched. With appropriate nasal and pharyngeal treatment, otitis could often be prevented or mitigated in severity. If enlarged tonsils or adenoid growths interfered with treatment they should be removed. Whilst anodynes were indicated for pain, other treatment, including early incision of the tympanic membrane, were necessary in order to limit rapidly destructive suppurative processes in the middle ear and labyrinth. (Lancet, Jan. 11, p. 83.)

BLACK EYE.—Cure for.

The *St. Louis Polyclinic* says there is nothing to compare with the tincture or a strong infusion of capsicum annuum mixed with an equal bulk of mucilage of gum arabic, and with the addition of a few drops of glycerin. This should be painted all over the surface with a camel's-hair pencil and allowed to dry on, a second or third coating being applied as soon as the first is dry. If done as soon as

the injury is inflicted, this treatment will invariably prevent the blackening of the bruised tissue. The same remedy has no equal in rheumatic stiff neck. (N. Y. Med. Record, Nov. 16, p. 547.)

BLEPHAROSPASM.—Etiology and Treatment.

In an essay on this subject (*Archives d'Ophthalmologie*), Dr. Valude points out that blepharospasm of nervous origin, not preceded by traumatism and unaccompanied by any irritation of the external parts of the eye, is an obscure phenomenon, and has by different authors been regarded as of a reflex nature and as allied to hysteria. He proceeds to show that in one class of cases it is associated with ocular lesions, and caused by photophobic conditions that are dependent upon phlyctenular keratitis, and occur in scrofulous children. For this he agrees with M. Gayet in adopting forcible extension of the orbicularis palpebrarum muscle, and with Abadie in employing massage of the muscle with vaseline, traction being made chiefly in a radiating direction. Of course the treatment in general use for the primary disease must be practised in addition. The second form of blepharospasm corresponds to those cases which are associated with troubles of the duct or cicatrices of the skin, on the one hand, and to hysterical, psychically degenerated and monomaniacal patients, of which he gives an instance, on the other hand. The treatment appropriate to such cases should be carried out. He refers to a case reported by Faus in which good results were obtained by the injection of a solution of curara of the strength of 1 to 100, thirteen drops being injected three times daily. It is remarkable that in this essay no notice is taken of the influence of hypermetropia and astigmatism in inducing blepharospasm. Some cases at least can be cured by the use of appropriate glasses. (Practitioner, Jan., p. 49.)

CATARACT EXTRACTION.—Comparison of Extraction with and without Iridectomy.

The *advantages* of simple extraction without iridectomy are as follows: 1. It preserves the natural appearance of the eye, a central, circular, and movable pupil. 2. The acuteness of vision, other things being equal, is greater than after the old operation. 3. Eccentric vision and orientation are much better than by the old operation. 4. Small particles of capsule are not so likely to be incarcerated in the wound, and thus act as foreign bodies and excite irritation. 5. The necessity of after-operations is probably not so great as after the old operation.

The *disadvantages* of simple extraction are: 1. The technique of the operation is decidedly more difficult. The corneal section must be larger in order that the extrusion of the lens may be facilitated, as the presence of the iris acts as an obturator or obstacle to its passage. The corneal section must be performed rapidly so as to avoid the danger of the iris falling on the knife and being excised.

The cleansing of the pupillary space and the posterior chamber is much more difficult than after the old operation. 2. Posterior synechiæ, secondary prolapse, and incarceration of the iris are more frequent than after the old operation. 3. The operation is not applicable to all cases. This objection, however, applies to all operations. (Dr. C. Stedman Bull, Prof. of Ophthalmology, New York University, N. Y. Medical Journal, Nov. 2, p. 480.)

CATARACT EXTRACTION.—Indications for Iridectomy in.

The indications for performing an iridectomy in cases of cataract extraction may be formulated as follows: 1. When the vitreous is fluid or the zonula is ruptured, causing non-presentation of the lens and prolapse of the vitreous. 2. Insufficient length of the corneal section with prolapse of the iris. 3. Bruising of the iris during the operation. 4. A stiff, unyielding sphincter iridis. 5. Irreducible prolapse of the iris after the completion of the operation. (Dr. C. Stedman Bull, *Ibid.*)

OPHTHALMIA NEONATORUM.—Treatment by Naphthol.

Buscarlet (*Archives de Tocologie*) reports the prophylactic treatment of ophthalmia at the Paris Charité as follows: For the mother, vaginal antiseptic douches during labour, bichloride of mercury 1 : 2000, or β -naphthol 1 : 2500 or 1 : 5000. The child's eyes are touched with solution of silver nitrate 1 : 100 or 1 : 50. For simple purulent ophthalmia the eyes are douched every hour by day, and every two or three hours by night with β -Naphthol, grs. 6; alcohol, \mathfrak{z} 3; distilled water, 1 quart, while the eyes are covered with compresses wet in the solution. In gonorrhœal ophthalmia the conjunctivæ are cauterized with silver nitrate solution 1 : 50 or 30 every twelve hours. Naphthol douches are continued, given by a fountain syringe, with compresses. (American Journal of Medical Science, Nov., p. 543.)

OPTIC ATROPHY.—Latency of Ataxic Symptoms in.

G. L. Walton (*Boston Med. and Surg. Journal*) calls attention to the early occurrence of optic atrophy in locomotor ataxia, and says that in persons in whom there exists this atrophy without recognizable cause, the chances are altogether in favour of the symptoms of tabes developing later. He quotes the statement of Gowers, that optic atrophy so universally appears early in the disease, that, after the ataxic gait is fairly established, it is of rare occurrence. Also the converse statement that, when optic atrophy has become developed, it is common for the other symptoms of locomotor ataxia to remain in abeyance. In a large number of cases the ataxia never comes on, the spinal malady becoming stationary when the nerve suffers. If this be true, its bearing both on prognosis and diagnosis is of considerable importance. Walton has, therefore, studied the matter from this point of view, and has looked through the records of sixty-six cases of locomotor ataxia in the hope of throwing addi-

tional light on the subject. In fourteen of these optic atrophy was present, and in six others there was decided loss of vision, but no description of the optic nerve was given in the notes. The noticeable features among these cases were the large proportion in which the knee-jerk was retained on one or both sides, and the large proportion in which ataxia was either absent or slight. To this absence or indefinite postponement of the ataxia he calls especial attention as confirming the statements of Gowers. As the loss of the knee-jerk usually occurs so early in locomotor ataxia, it was significant that in a number of the cases showing optic atrophy, the knee-jerk was preserved. The constancy of one symptom—the Argyle-Robertson pupil—was noticeable in the cases with optic atrophy, as in those without it. This symptom, together with characteristic pains, may, it seems, be looked for early in these cases, however latent the motor symptoms. The practical bearing of these facts is to assist us in both diagnosis and prognosis. As regards diagnosis, they lead us to consider with confidence as instances of locomotor ataxia certain cases of optic atrophy which we would otherwise hesitate to place in this category, on account of the presence of knee-jerk and the absence of ataxia. As regards prognosis, they would lead us to predict a comparative latency of the motor symptom of the disease where optic atrophy has become pronounced. The author closes his paper with a detailed account of several cases illustrative of the points which he has made. (*American Journal of Medical Science*, Oct., p. 403.)

SYMBLEPHARON.—Operative Treatment.

At the Ophthalmological Society, on Dec., 12, 1889, Mr. Tweedy gave a description of a procedure which he had adopted in cases of extensive symblepharon following burn. It was most suitable for those instances in which there was a prolongation of the cicatrix on to the cornea. His plan was freely to separate the lid from the cornea and globe, making a sulcus rather deeper than that of the normal conjunctiva; then having attached two or three fine doubled silk threads to what had been the uppermost margin of the symblepharon, to pass these by means of curved needles through the lid from the bottom of the sulcus, bringing them out on the skin surface as near the lower orbital margin as possible. These threads were then tied over a piece of drainage tube, and allowed to remain in position for four or five days. By this means the cutaneous surface of the corneal portion of the symblepharon was folded inwards and became the lining membrane of the lid. The patient should be kept under observation during the process of repair, so that any adhesions which formed between the lid and the globe could be broken down. If the lower lid were much incurved by the folding of the flap, its position could be restored by buttonholing the flap near the margin of the lid. (*British Medical Journal*, Dec. 21, p. 1395.)

TRANSITORY AMAUROSIS FROM LEAD POISONING.

Visual defects directly caused by lead are of rare occurrence. They appear not to be met with in more than 1 per cent. of cases of lead poisoning. When the sight is affected, there may or may not be ophthalmoscopic changes found to account for it. Most frequently there are. As a rule, either the optic nerve or retina is the site of the changes. Guensburg of Breslau has lately added another to the list of published cases in which there has been more or less sudden blindness along with other symptoms of lead poisoning, and unaccompanied by any ophthalmoscopic changes. In all the cases the blindness has been complete, or all but complete, but the pupils have contracted to light. Recovery has usually taken place in a few days. In Guensburg's case the sight returned after a purge. The other symptoms of lead poisoning were marked. Little is known definitely as to the exact pathology of those cases. The only post-mortem examinations which have been made have not revealed anything definite. According to one theory, which has the support of Leber and Vulpian amongst others, the retention of the lead in the system acts as a direct irritant to the nervous system. Guensburg points out that this is a somewhat vague theory. Jaccoud and others hold that the cause is some transitory disturbance of the circulation; but here, again, there is an absence of any evidence from ophthalmoscopic examination, and yet it is known that very marked circulatory changes may be met with in the retina without any high degree of amblyopia resulting. Another hypothesis, recently advanced by Stood, is that an effusion takes place into the sheath of the optic nerve. Guensburg himself suggests that when the amaurosis occurs it is really uræmic and induced by a disturbance with the functions of the kidney. This certainly appears to us the most plausible explanation, as it is unlikely, as Guensburg remarks, that a transitory effusion into the nerve sheath could give rise to such complete amaurosis. (Mr. George A. Berry, M.B., *Edinburgh Med. Journal*, Dec., p. 580.)

TOBACCO AMBLYOPIA.

Dr. Leartus Connor, of Detroit, concludes an exhaustive paper on this subject with the following propositions. 1. Tobacco has an especial affinity for a central tract in the optic nerves, and may induce central amblyopia. 2. No other single agent has been shown to induce central amblyopia symmetrical in both eyes, in strictly non-users of tobacco. 3. Some special condition or conditions are required to precipitate an attack, as abuse of alcohol, diabetes, excessive venery, starvation, mental shock, or distress, &c. 4. Some individuals seem to have an especial tendency to optic nerve degeneration, and to these the use of tobacco is especially injurious. 5. Clinically central amblyopia is recognised by its sudden development, by the existence of central scotoma for colour in both eyes without limitation of the fields of vision, by the absence of any

defect of refraction or recognizable lesion to account for the sudden blindness, and by its occurrence only in tobacco smokers. 6. Pathologically, during at least its earlier stages, it consists of an anæmia of the central portions of the optic nerves. Possibly this may, after a longer or shorter time, induce organic disease, but this has not yet been shown in a case of pure tobacco amblyopia. Its prognosis is good during the earlier stages at least, if properly managed. 7. Its treatment consists principally in withdrawing the tobacco. Other measures may be profitably employed that promote the local nutrition of the eye and the system in general. (*Journal of the American Med. Association*, Feb. 15, p. 223.)

OBSTETRICS AND GYNÆCOLOGY.

ANTISEPTIC INJECTIONS IN OBSTETRIC PRACTICE.

Garrigues (*Trans. American Gynecological Society*) believes in the value of prophylactic douches before labour, and repeatedly during prolonged labours. If the hand or an instrument be introduced within the uterus during labour, an intra-uterine douche should be given. The material should be bichloride of mercury 1: 5000, carbolic acid, thymol, salicylic acid, zinc chloride, or creolin. A glass vaginal tube is chosen for vaginal douches; a single tube for intra-uterine. The temperature should be 110° to 115° F.; the quantity two or three pints for intra-uterine, several quarts for vaginal. The uterus should be compressed after the douche, and the fluid drained from the vagina.

Lusk was in favour of prophylactic vaginal douches; intra-uterine douches were most successful where septic matter was retained in the uterus. In septicæmia, in which bacteria are the agents of poisoning, douches did no good, but only hastened the absorption of germs into the lymphatics. One intra-uterine douche, followed by an iodoform suppository, was all that is advantageous. Curetting the uterus, followed by douches, is occasionally useful. Typhoid fever he believed was not infrequently mistaken for puerperal fever.

Mundé examined the uterus with the finger for septic matter if symptoms arose. If discovered, he curetted the uterus and irrigated; ergot was then given, a cold coil placed upon the abdomen, and an antiseptic pad over the vulva. (*American Journal of Med. Science*, Nov., p. 538.)

BRIGHT'S DISEASE OF PREGNANCY.—Induction of Premature Labour in.

In reviewing my experience with Bright's disease associated with pregnancy, either as a consequence or an accidental complication, I have been led to believe it possible to formulate more precisely than has been done, the conditions under which premature labour may be induced with a view to averting the tragic termination so

often met, premising also that I believe that certain lives now lost might be saved. First. I would recommend the induction of premature labour with a view to saving the life of the patient, first, in cases of Bright's disease complicating pregnancy where in a previous pregnancy there has been puerperal nephritis with grave complications. Second. I would advise the induction of premature labour with a view to saving the life of the patient in all primiparæ in whom there is Bright's disease previous to pregnancy. So many cases of this kind have come under my notice in which death terminated a terrific scene at the first confinement that I have grown to regard the girl thus afflicted as walking to her sacrifice as she walks to the altar, and if the opportunity presents I discourage marriage in the strongest terms. Should it happen, however, that a girl thus afflicted does marry, she should never be allowed to go to term, but premature labour should be induced as soon as the foetus is viable. I have often wondered, if the proper examination of the urine were made in every case before marriage, how many of those in whom a fatal puerperal nephritis developed would have shown albuminuria. I am inclined to believe the proportion would be surprisingly large. Third. There remain only to be considered those cases of puerperal nephritis not included in the first and second categories, viz.: those in which we have not the knowledge gained by experience with a previous occurrence of the disease in the same patient, and those which are not primiparæ having Bright's disease previous to marriage. They include, therefore, acquired puerperal nephritis in primiparæ, acquired puerperal nephritis in multiparæ present for the first time, and acquired puerperal nephritis in multiparæ where a previous labour has been accomplished without serious results. These are in fact the cases in which it is most difficult to decide treatment, because the data determining action in the other cases are wanting. It is evident, therefore, that each case must be decided on its own merits. One fact of importance in the natural history of these cases must be emphasized as having an important bearing on the treatment, and that is that a large number of them terminate by miscarriage, and when they do so the patient is generally saved. I did not realize until recently how common this accident is, and was surprised in looking into the cases with which I have had to do to see how large a number miscarried. These cases, too, terminated favourably in every instance for the mother, but more rarely for the child. The following is a good illustration of this class: A young woman of 22, a patient in the Philadelphia Hospital, somewhat passed the seventh month of pregnancy, developed uræmic symptoms. She had an albuminuria ranging from one-twentieth to one-tenth bulk. At times there were no casts in the urine, at others were found casts of several kinds, including granular, hyaline and epithelial, and even waxy and pus casts. There was undoubtedly puerperal nephritis. A

consultation decided on the induction of premature labour, but pending some further study of the case by myself she miscarried, certainly when not more than seven and one-half months advanced. The child died in four days, but the woman did well. This frequency of miscarriage in puerperal nephritis I find generally attested by others. Reverting to the third category of cases, it is plain that no definite course can be laid down. Each case must be decided on its own merits. In general, however, it may be said that the supervision of uræmic symptoms demands immediate interference, but, in consequence of the variety in these and their occasional simulation by symptoms due to other causes, great care must be observed lest an error in diagnosis be made. So also a marked degree of other symptoms of Bright's disease, such as interfere with important and necessary functions, may justify interference. As a rule, too, the same symptoms are more serious in robust women than in the delicate and less hardy. It is scarcely necessary to say also that Bright's disease acquired in the first pregnancy is a much more serious complication than in a later one, and although less serious than a Bright's disease previous to marriage on which a pregnancy has supervened, labour is rarely terminated without grave symptoms, while the patient often pays the penalty of her life. Under these circumstances, therefore, when the symptoms are of a positive or dangerous character, I should also favour the induction of premature labour. (Dr. James Tyson, *Journal of American Medical Association*, Oct. 26, p. 579.)

CANCER OF FEMALE GENITAL ORGANS.—Chloride of Zinc.

At the Leeds and West Riding Medico-Chirurgical Society, on Nov. 1, 1889, Dr. Braithwaite read a communication on cases illustrating the advantages derivable from the use of chloride of zinc as a caustic in cancer of the female generative organs. 1. When the knife could be used it was usually preferable to employ it, and only resort to the zinc upon the first appearance of a return. 2. In some cases the zinc should be the first, and indeed only, weapon used, as in commencing cancer of the cervical canal of the uterus, when, from any cause, the organ could not be pulled down into view, as when the uterus was fixed by old inflammatory adhesions. In commencing cancer of the vulva or vagina, if the disease were superficial and not of great extent, this treatment alone was necessary, but it might or might not be preceded by erosion a few days before. 3. It should be applied by means of a very thin layer of cotton-wool wetted with the zinc solution and lightly pressed between two pieces of blotting paper. It then did not run. 4. A saturated solution should be used. The fluid resulting from the deliquescence of the solid was the most convenient form. 5. The caustic required time. Usually, in twenty-four hours it had acted sufficiently; but, if a deeper action were required, it might be left longer. 6. Its use was followed by great contraction of the parts

—a safeguard to some extent against return of the disease. In this, as in other respects, it was superior to Paquelin's cautery, acid nitrate of mercury, and potassa fusa. One case was related in which a slough was made of the whole interior of the uterus, not too deep to be dangerous, but sufficient to remove the surface and some of the adjacent tissue. The patient was being weakened by hemorrhage and poisoned by absorption of the sanious discharge. (British Medical Journal, Nov. 16, p. 1104.)

COMPLETE PROLAPSE OF THE CERVICAL ZONE OF THE UTERUS Preceding Labour at Full Term.

In the Section of Obstetrics of the Royal Academy of Medicine in Ireland, on Nov. 22nd, 1889, Dr. F. W. Kidd read the account of a case of this nature, and made the following remarks, amongst others, upon the condition of prolapse of the pregnant uterus: Prolapse of the cervix in the pregnant uterus may take place early or late in pregnancy, but the predisposing causes are almost always some or all of the following—viz., weak ligaments, unusually large and wide pelvis, rupture of the perineum in previous labour, and relaxed vaginal walls, with rectocele, cystocele, or both combined; while the determining cause is usually lifting some weight, jumping or falling on the feet from a height, or severe muscular exertion—such as washing over a tub. The treatment must often be varied according to the exigencies of the case. In broad terms, however, the treatment should be—in every case endeavour to return the prolapsed portion. If that be not feasible, dilate the canal by hydrostatic dilators, manual dilatation, or by incision, and deliver by forceps or cephalotripsy, supporting the perineum and vulva well, lest lower segment be drawn through. In complete procidentia, if you cannot return it, labour must take place outside the pelvis. If the uterus does not empty itself, you may have to resort to the forceps or turning. You can in this case support the prolapsed portion by a sheet with a hole cut out of it large enough to let the child pass through. With regard to the class where the cervix is hypertrophied and elongated, Galabin, in a paper on Prolapsed Uterus, says:—"In cases of hypertrophied cervix during an expulsive effort the swollen and hypertrophied cervix is forced suddenly through the vulva, and while it is held strangulated in that position for a greater or a less time, the elastic supports of the uterus, tending to lift it again to its normal position, have a direct influence in stretching the supra-vaginal portion." Some obstetricians have advocated the amputation of this elongated cervix when it is likely to interfere with parturition, but there is one great danger which is clearly portrayed by Barnes in the chapter on Prolapsus of Gravid Uterus in his Lectures on Obstetric Operations—namely, that of opening into the retro-uterine peritoneal pouch, which is dragged low down by the inversion of the vagina; also in front the peritoneum descends behind the bladder to the same level.

as the lower margin of the symphysis pubis. (Dublin Journal of Medical Science, Jan., p. 6.)

LUPUS OF THE FEMALE GENITALS.

Dr. R. W. Taylor publishes an elaborate and exhaustive essay upon Chronic Inflammation, Infiltration and Ulceration of the External Genitals in Women, in which the following Conclusions are fully elaborated:—1. That a large and perhaps the greater number of chronic deforming vulvar affections are due to simple hyperplasia of the tissues induced by irritating causes, inflammation, and traumatism. 2. That chronic chancroid is a cause in a certain proportion of cases. 3. That many cases are due to essential and specific syphilitic infiltrations. 4. That other cases are caused by the hard oedema which often complicates and surrounds the initial sclerosis and perhaps gummatous infiltration. 5. That many cases are due to simple hyperplasia in old syphilitic subjects who suffer from chronic ulcerations of the vulva long after all specific lesions have departed. 6. That some cases also in old syphilitics are due to simple hyperplasia without the existence of any concomitant ulcerative or infiltrative process, and seem to be caused by conditions which usually in healthy persons only result in vulvar inflammation. (N. Y. Medical Journal, Jan. 4, p. 2.)

OCCIPITO-POSTERIOR POSITIONS.—Treatment of.

Bataillard (*Annales de Gynécologie*) has collected 400 cases of occipito-posterior positions; 353 of these cases became occipito-pubic positions by spontaneous rotation. In primiparæ when the child weighed from five to six pounds, labour was two hours longer than in anterior positions; from six to seven and a half pounds, it was three and a half hours longer. With multiparæ labour was shorter when the foetus was comparatively large. The treatment employed when rotation failed was the introduction of the antisepticised hand to effect rotation; this usually dislodged the head from the sacrum, and if further rotation failed the forceps was applied to the sides of the head and rotation was completed. Tarnier's forceps was especially useful in these cases. The maternal mortality of these cases was 0.5 per cent.; of 660 contrasted cases of occipito-anterior position, 0.46 per cent.; foetal mortality in occipito-posterior positions was 2 per cent.; in anterior positions, 0.76 per cent. It was necessary to apply forceps at the superior strait in 6 per cent. more cases than in anterior positions. (American Journal, Dec.)

PARAMETRITIS.—The Etiology of.

Bumm (*Archiv für Gynäkologie*) has made some important observations with the view of determining the true cause of so-called cellulitis. When pus is present it is much easier to decide this question than in the case of a simple serous exudation. Cellulitis is usually divided into the infectious and the traumatic varieties, but the writer punctured a supposed traumatic exudation in five

cases, two of which he found to be of gonorrhœal origin, while the fluid from the other three contained streptococci. Parametritis was induced artificially in rabbits, and in every instance streptococci were found in the exudation, even when there was no pus, hence the legitimate inference that *there is no purely traumatic cellulitis*. Whenever streptococci are present *there must be infection from without*; they are never found in the healthy genital secretions. Auto-infection is extremely improbable.

[The extreme importance of this unassuming paper is not at first appreciated. If the writer's deductions are correct, he has at length thrown some light upon a subject in which there has been more theorizing than on any other in the whole range of medicine—the nature and origin of pelvic cellulitis. As the result of his studies, he reaches the same conclusion as many thoughtful gynecologists, that old indurations in the broad ligaments are in themselves comparatively harmless, and that the danger of exciting fresh inflammation in them by operating on the cervix uteri has been much exaggerated. As Bumm shows, where inflammation arises in the pelvic cellular tissue it is directly attributable, not to the operation, but to the operator—to *infection*, not to *traumatism*. Positive scientific facts like this accomplish more for the progress of gynecology than do the most plausible theories.] (American Journal of Med. Science, Feb., p. 217.)

POST-PARTUM HEMORRHAGE.—Causes and Treatment.

Grenser (*Centralb. für Gynäkologie*) treated successfully twenty severe cases of hemorrhage after abortion and labour by thoroughly emptying the uterus; bandaging the extremities; keeping the patient horizontal; injecting ether under the skin repeatedly, and also transfusing into the cellular tissue saline solutions. Leopold, in his clinic, did not remove the placenta for an hour after labour unless hemorrhage occurred. He had found the partial attachment of the placenta to the lower uterine segment a frequent cause of hemorrhage, the upper portion of the placenta remaining firmly attached, while the lower portion separated from the lower uterine segment which bled freely. The retention of an additional lobe of placenta is also a cause of hemorrhage. In hemorrhage after abortion he dilated the cervix, if necessary; emptied the uterus, and touched the interior with cotton dipped in iron; the injection of iron he considers most dangerous. (American Journal, Nov., p. 541.)

POST-PARTUM HEMORRHAGE.—Iodoform Gauze in.

Dr. O. Piering, assistant in Prof. Schauta's obstetric clinic in Prague, has published his experience in the employment of Dührssen's plan of plugging the uterus with iodoform gauze for post-partum hemorrhage due to an atonic condition of the organ. Dührssen recommends that, when post-partum hemorrhage comes on, the bladder should be emptied, and forcible friction and intra-uterine irrigation of hot or cold water, along with ergotin in hypodermic injections

employed; that if the hemorrhage still continues, the cavity of the uterus should be filled with iodoform gauze, the irritation produced by this setting up active and permanent contraction. The method has, according to Dührssen, the advantages of great certainty, complete harmlessness, and facility in its performance. Olshausen, Veit, and Tehling, however, say that the contraction set up is not always permanent, and that the method is not so free from danger as Dührssen believes. In consequence of these conflicting views, Dr. Piering resolved to give the method a trial, and he details several cases in which he employed it with complete success. In no case was any harm done by it. He advises that resort to the plug should not be too long delayed, and he prophesies an important future for the plug of iodoform gauze in post-partum hemorrhage. (*Lancet*, Nov. 9, p. 970.)

PUERPERAL ANÆMIA.—Its Treatment with Arsenic.

Dr. Osler (*Boston Med. and Surg. Journal*) says that of the twenty-one cases of pernicious anæmia of which he has notes, nine were in women, and in five of these the condition developed post-partum. One of them he reports, by way of illustration. The patient began and continued to grow anæmic after confinement, could not sit up in bed without fainting, had constant vomiting and uncontrollable diarrhœa. Under the continued administration of Fowler's solution she steadily improved and became robust and of a good colour, though iron had previously been given without any benefit whatever. The author then reviews the history of the employment of arsenic in pernicious anæmia, and calls attention to the fact that we do not fully understand the reason why the drug should be so useful in some cases and so useless in others. It certainly has often an effect in profound anæmia much resembling that of a specific; like that of quinine in ague, and iron in chlorosis. The initial dose should be five drops, increasing gradually to twenty or thirty drops three times a day. Puffiness of the eyelids, œdema above the eyebrows, vomiting or diarrhœa, indicate that the drug should be suspended for a time. Sometimes arsenious acid is well borne, when Fowler's solution disagrees with the stomach. The point of greatest importance is that the medicine must be given for long periods and in increasing doses. In post-partum cases recovery is always slow, and it is well to intermit arsenic for a few weeks; but it should be given at intervals for many months, even when the health is apparently re-established, as there is a well-recognized tendency to relapse in these cases. (*N. Y. Medical Record*, Oct. 5, p. 374.)

PUERPERAL CONVULSIONS.—Treatment.

To sum up, the treatment of puerperal eclampsia includes the prophylactic treatment and the treatment of the convulsive seizures. Many pregnant women have albuminuria and nephritis, and go to their full term without convulsions. In these cases, the kidneys, though damaged, have never ceased duly to fulfil their rôle as blood

depurators. In other cases, there are early warnings that there is danger ahead. Among the symptoms of renal insufficiency are headache, change of temper, drowsiness, ringings in the ears or photopsia, perhaps more or less dimness of vision, or blindness of one or both eyes, dizziness, dyspnoea, especially on exertion, nausea, and vomiting; the urine is scanty and loaded with albumen, while the percentage of urea is not more than one-half or one-fourth the normal. The patient may complain of involuntary twitchings, and of general prostration. Here the duty is plain. The patient must refrain from work, be put on a diet of milk, with or without Vichy water, and fruits, with a minimum of animal food. Saline diuretics, as cream of tartar or acetate of potassium, may be prescribed, and tincture ferri chloridi in full doses three times a day; a full dose of Glauber salts in the morning to promote free elimination by the bowels. It may even be expedient to give at bedtime a full dose of fluid extract of jaborandi to produce profuse sweating, or administer hypodermically $\frac{1}{8}$ of a grain of pilocarpine, or even resort to the wet-pack or hot-bath. If, in spite of these efforts to relieve the engorged kidneys and protect the irritated nerve-centres, the patient becomes worse and convulsions seem imminent, premature labour should be induced by rupturing the membranes, or by the use of Barnes's water-bags. When called to treat a woman already in the writhings of convulsions, if labour has not already commenced, it must be expedited by artificial means under chloroform. If labour has considerably advanced, and the os is dilated or dilatable, the patient must be immediately delivered by the forceps or by version. A 10-grain calomel powder may be placed on the patient's tongue, and if the vascular tension seems high, sixteen ounces of blood may be taken from the arm. It will be seldom desirable to repeat this venesection. Chloroform should be administered to complete anæsthesia, and the patient should be kept under its influence as long as convulsions threaten. As adjuvant to the chloroform, a full dose of chloral may be given by mouth or by rectum. Possibly in obstinate cases a full injection of morphine may be advisable. I believe that this treatment will be more effectual and will save more patients than any other therapeutic method. (Dr. E. P. Hurd, Newburyport, Mass., *Therapeutic Gazette*, Nov.)

RETROVERSION OF THE GRAVID UTERUS.

Martin (*Deutsche Med. Wochens.*) has found in 24,000 women 121 cases of retroflexion of the uterus persisting during pregnancy. In 27 of these cases pregnancy occurred, although the deformity was congenital, and affections of the endometrium, tubes, and ovaries were not uncommon. A case is cited in which the patient suffered for three and a half years with congenital retroflexion and gonorrhoea, but after recovery she conceived and bore a healthy child. It was usually true that sterility in these cases depended upon a diseased endometrium or stenosis of the tube, and not upon the

congenital retroflexion. In 94 cases the retroflexion persisted after repeated pregnancies; 9 of these patients wore pessaries at the time when conception occurred. A large portion of pregnancies in retroflexed uteri with beginning incarceration never come to the physician's notice, but undergo spontaneous reduction. When this does not occur the most significant symptom is dysuria. Reposition of the retroflexed uterus should always be done if spontaneous restitution fails; if necessary, the uterus should be amputated, or removed per vaginam if pregnancy be not advanced. (American Jour., Jan.)

TOTAL EXTIRPATION OF THE UTERUS.—Statistics of.

Münchmeyer stated at the recent meeting of the German Gynecological Society that between 1883 and May, 1889, there were 110 cases of hysterectomy, 80 being for cancer. Of the latter, four patients succumbed to the operation, while of the remainder 62 were still living, only three of whom had a recurrence. Freund, in commenting upon this report, stated that in 1878, he had removed a cancerous uterus from a patient who was still perfectly well, and Olshausen said that he had one who had no recurrence twelve years after amputation of the cervix uteri for epithelioma. (American Journal, Jan., p. 107.)

TUBERCULOSIS OF THE FEMALE GENITALS.

Werth's paper on this subject, read at the recent meeting of the German Gynecological Society (*Centralblatt für Gynäk.*), considers only those cases in which surgical treatment is indicated—that is, those in which the tubes are affected. Two forms of tuberculous disease of the tubes should be distinguished, an acute and a chronic; in the former both the muscular and serous coats undergo cheesy degeneration, numerous bacilli being found in the interior of the tube, while in the latter the tubal wall undergoes hypertrophy and cell-infiltration, while its contents contain only a few bacilli. The increase in size of the tube, which may be considerable, is due to the collection of pus in its interior, as well as to the hypertrophy of the wall. With regard to the treatment of this condition the writer does not agree with Hegar, who advises extirpation of the tuberculous tubes even when the peritoneum is affected; under these circumstances he simply evacuates the contents of the tube, which does not refill. In the discussion following the reading of the paper Elischer agreed with the reader that it was inadvisable to extirpate the tubes in cases of general tuberculosis. Hegar explained that he had been misunderstood as to two points. The reader had quoted him incorrectly as having stated that a tuberculous tube was thickened at its uterine end more frequently than was the case in any other form of salpingitis. He would, of course, not remove the tubes in cases of general tuberculosis, though he would not hesitate to do so when the disease was limited and the tubes were evidently the original foci; if the latter contained pus he would certainly remove them. (American Journal, Oct., p. 435.)

UTERINE CANCER.—Deodorizing Injection for.

In *L'Union Médicale*, Dr. Cheron recommends the following injection as efficient in destroying the fetid odour of uterine cancers :
 R. Acid. salicylic., gr. ij ; sodium salicylate, gr. xl ; tinct. eucalyp., f ʒ jss ; vinegar, f ʒ jss. M. This is to be added to one or two pints of water and used as a douche every few hours. (Med. News, Nov. 30.)

UTERINE COLIC.—Treatment by Antipyrin.

Misrachi (*Archives de Tocologie*) reports his results in treating uterine colic with antipyrin in fifty-six cases. In doses of from fifteen to thirty grains it was prompt and efficient ; hypodermically, seven and a half grains gave good results. After-pains were relieved in this manner, and painful uterine contractions following the use of ergot. (American Journal, Nov., p. 542.)

UTERUS.—Treatment of Cavity after Curetting.

Of all the methods of dressing the uterine cavity after curetting, the one which has proved most satisfactory is that of filling it carefully with iodoform gauze, and leaving the end extruding from the external os. The pressure here exerted upon the uterine walls can be so beautifully and perfectly graded according to the judgment of the operator, that all hemorrhage is at once arrested. Tags of unfinished shavings are compressed firmly against the denuded surface, and unite there. Under other circumstances these unfinished scrapings often necrose, and the base of the shaving forms a little eddy for retention of discharges to decompose and set up trouble. The principal locality in which these spots of danger occur is just above the internal os. When iodised phenol or other cautery is applied, these jagged points are converted into little ulcerating pits from which septic absorption takes place, culminating in a sharp attack of pelvic inflammation. Every gynæcologist has experienced such unpleasant results after curetting when there previously existed no legitimate foundation for such a sequence, and may be accounted for in the manner I have described. This danger will always exist with the injection of fluid or the application of caustics to the interior of the uterus, and should not therefore be made a routine practice. Now that we are cognizant of these dangers, we can see the great safety and therapeutic advantage of filling tightly the uterine cavity with a soft elastic and aseptic material prepared with iodoform suspended in paraffin. This material, prepared by Dyer of Montreal, is in advance of every other for this purpose. It can be left in for four or five days, if necessary, without the least fear of having it undergo change. There is absolutely no drain so good, and by its side pressure on the uterine walls all remnants of undetached membrane re-unite, resulting in a perfectly smooth cavity surface. (Dr. Johnson Alloway, Instructor in Gynæcology, McGill University ; Montreal Med. Journal, Dec., p. 405.)

Medicine.

GENERAL MEDICINE AND THERAPEUTICS.

ART. 1.—ON THE DISINFECTION OF DWELLINGS BY MEANS OF SULPHUR DIOXIDE.

By CYRUS EDSON, M.D., Chief Inspector, Health Department,
City of New York.

Within the past few years, numerous experiments have been made by biologists with sulphur dioxide. They have failed in numerous instances to disinfect artificially infected rags and other material subjected to its influence. These experiments have led biologists to pronounce sulphur dioxide unreliable in its action upon the contagion of disease. I have had, in my official position, a wide experience with sulphur dioxide as a disinfectant, and I have been led to the conclusion that it is a thorough and an almost perfect destroyer of the infective matter of the acute exanthemata and diphtheria. The facts that I will place before you in this short paper do not, I am aware, prove perfectly and beyond doubt that SO_2 is an absolutely reliable disinfectant. They seem to me to be strong circumstantial evidence in its favour, and I present them as such. The Disinfecting Corps of the Health Department of the City of New York, during the years 1887 to October 1, 1889, fumigated, by means of SO_2 generated from burning sulphur, nearly every room in tenement-houses in our city that had contained cases of small-pox, scarlet fever, diphtheria, or measles. I say *nearly* every case. The aim of the Department was to have the rooms in every case fumigated; but the Corps was a large one, and occasionally a man was found derelict in his duty and had to be discharged, so that wilful neglect in a few instances caused some cases to be neglected. The method of using the sulphur was substantially in accordance with the rules laid down by the Committee on Disinfection of this Association. The sulphur was placed in a shallow iron basin, which was supported in a suitable tub containing water. Ignition was effected by means of about four ounces of alcohol poured over it.

I will take each disease separately, and by comparing the total number of cases with the number of cases that recurred, the recurrence of which could be attributed to infection left after fumigation, show the efficiency of the agent in question. In the year from October 1, 1887, to October 1, 1888, we had in our city 321 cases of *small-pox*. These cases occurred in 227 houses. Eighty-two of these cases were contracted from exposure to some

of the 239 original cases, nearly all of which were in their turn traced to direct exposure to other cases, either out of the city or in it. Nine cases could not be traced to their cause. They were probably due to contagion from some mild, unrecognized case, that travelled about spreading the disease. Not one single case of the disease was developed from the clothing or from the rooms in which these cases were, and from which they were removed to the hospital for small-pox. No other precaution was taken in the case of the rooms and clothing than that of fumigation by SO_2 , in proportion of three pounds of sulphur to each one thousand cubic feet of air-space for at least two hours. This, however, was done in a most conscientious and careful manner, immediately after the removal of each case. Again, in the year from October 1, 1888, to October 1, 1889, 7 cases of small-pox occurred in 5 houses. All were traced to their cause, which was found to be direct exposure to a previous case. Not a single case occurred from infection left in the room or clothing by any of these cases. We always permit occupancy of rooms that have contained small-pox patients, as soon as they have been fumigated. In this connection the effect of fumigation by SO upon vaccine virus is interesting. On October 2, 1889, ten quill slips, charged with vaccine virus taken from a lot charged equally from the same animal, were exposed in a room $76 \times 15 \times 8$, to the fumes of one pound of sulphur for two hours. Each slip was then used to vaccinate a child that had never before developed vaccinia. All failed to effect any result. Ten other points from the same lot were effective upon all but one child of ten other primary cases. This child evidently had considerable resistance against vaccinia, as it only took after the third trial.

For the purposes of this paper, the same comparison of primary cases with secondary cases, as I have stated was done in cases of small-pox, was made of scarlet fever, diphtheria, and measles. Let us first take *scarlet fever*. From January 1, 1888, to October 1, 1889, 626 cases occurred in 453 houses, and 135 secondary cases occurred in 87 houses. Of the 135 secondary cases, 106 occurred within five weeks of the beginning of the primary cases, to the direct contagion of which they were presumably due. This leaves but 29 cases, out of a total of 626, that were possibly due to contagion left in rooms and apartments after disinfection by means of sulphur dioxide after termination of each case. During the same period (January 1, 1889, to October 1, 1889), 515 cases of *diphtheria* occurred in 382 houses, and 114 secondary cases occurred in 80 of these houses. Seventy-nine of the secondary cases occurred within four weeks of the beginning of the primary cases, to the direct contagion of which they were, therefore, presumably due. This leaves only 35 cases, out of a total of 515, that were possibly due to contagion of diphtheria left in rooms and apartments after disinfection by means of sulphur dioxide after the termination of

each case. In the case of *measles*, 557 cases occurred in 361 houses, and 163 secondary cases occurred in 95 of these houses. One hundred and twenty-two of the secondary cases occurred within five weeks of the beginning of the primary cases, to the direct contagion of which they were, therefore, presumably due. This leaves only 41 cases, out of a total of 557, that were possibly due to contagion of measles left on the premises after disinfection by means of sulphur dioxide performed after the termination of each case.

These figures are interesting when carefully considered, and they show the relative efficiency of sulphur dioxide in the case of each of the diseases. The gas is most destructive to the contagion of small-pox, and next, to that of scarlatina. In the case of measles we have an explanation of the comparatively large number of secondary cases. The disease is a mild one, speaking comparatively, and many cases are not properly isolated in the homes of the poor; consequently, rooms and materials are infected outside of the apartment in which the patient belongs, and which the disinfecter fumigates. Moreover, during the past two years we have had so many cases of contagious diseases that measles have frequently not received the attention of our inspectors and disinfectors that should have been given it, scarlet fever and diphtheria taking most of the time of the men. The contagion of diphtheria would, from our statistics, seem to resist the action of sulphur dioxide most, and to be the most difficult to destroy. This is, in my opinion, due to the manner of its infection. The other three diseases infect a room mainly by means of the medium of the air, the contagion being exhaled or given off from the body and deposited evenly over the surfaces exposed to the infected air. In diphtheria, membranes and secretions are also infected, and the contagion is protected by being surrounded by a protecting medium into which sulphur dioxide cannot easily penetrate. This is probably the reason why biological experiments with SO_2 are not satisfactory. It is impossible to imitate in the laboratory nature's method of infection. The power of penetration of SO_2 into the culture-mediums cannot be very great. The medium must somewhat protect the culture within it, so that only those cultures are affected that are on the surface of the medium. Just as diphtheritic secretions protect diphtheritic contagion, so do culture-mediums, to a less extent perhaps, protect cultures. In nature's method of infection the infected air is carried by draughts and air-currents into cracks and corners accessible only to a gas liberated under much the same conditions as the contagion.

Conclusions.—It would seem that the proper and most practical method of disinfection of dwellings, after the occurrence in them of exanthemata and of diphtheria, is by means of sulphur dioxide, and that all clothing, bedding, &c., used in direct contact with the

patient, should be removed to a disinfecting station, properly equipped, and there subjected to heat of sufficient intensity to destroy all contagious matter. This in future will, I believe, be the method pursued by the Health Department of the City.

In the discussion of this paper by the American Public Health Association, the method of fumigation was criticised, it being alleged that not sufficient moisture was present with the sulphur dioxide to insure the best results. A very important point in this connection was brought out. The use of alcohol to ignite the sulphur, as described in the paper, adds materially to the moisture in the air of the infected rooms. The amount of alcohol used is, as I have stated, about four ounces to each charge, say of six pounds. This amount of alcohol will develop fifty quarts of steam, approximately.—*New York Medical Record*, Nov. 16, 1889, p. 533.

2.—PRACTICAL CONCLUSIONS OF THE SECOND HYDERABAD CHLOROFORM COMMISSION.

[The following practical conclusions are appended to the Report of the Second Hyderabad Chloroform Commission. The Report is signed by Surgeon-Major Edward Lawrie, M.B.Ed. (President); Dr. T. Lauder Brunton, F.R.S.; Surgeon-Major Gerald Bomford, M.D.Lond. (Secretary); and Dr. Rostomji, H.H. the Nizam's Medical Service. "The Commission has no doubt whatever that, if these rules be followed, chloroform may be given in any case requiring an operation with perfect ease and absolute safety, so as to do good without the risk of evil."]

I. The recumbent position on the back and absolute freedom of respiration are essential.

II. If during an operation the recumbent position on the back cannot, from any cause, be maintained during chloroform administration, the utmost attention to the respiration is necessary to prevent asphyxia or an overdose. If there is any doubt whatever about the state of respiration, the patient should be at once restored to the recumbent position on the back.

III. To ensure absolute freedom of respiration, tight clothing of every kind, either on the neck, chest, or abdomen, is to be strictly avoided; and no assistants or bystanders should be allowed to exert pressure on any part of the patient's thorax or abdomen, even though the patient be struggling violently. If struggling does occur, it is always possible to hold the patient down by pressure on the shoulders, pelvis, or legs without doing anything which can by any possibility interfere with the free movements of respiration.

IV. An apparatus is not essential, and ought not to be used, as, being made to fit the face, it must tend to produce a certain amount of asphyxia. Moreover, it is apt to take up part of the attention which is required elsewhere. In short, no matter how

it is made, it introduces an element of danger into the administration. A convenient form of inhaler is an open cone or cap with a little absorbent cotton inside at the apex.

V. At the commencement of inhalation care should be taken, by not holding the cap too close over the mouth and nose, to avoid exciting, struggling, or holding the breath. If struggling or holding the breath do occur, great care is necessary to avoid an overdose during the deep inspirations which follow. When quiet breathing is ensured as the patient begins to go over, there is no reason why the inhaler should not be applied close to the face; and all that is then necessary is to watch the cornea and to see that the respiration is not interfered with.

VI. In children, crying ensures free admission of chloroform into the lungs; but as struggling and holding the breath can hardly be avoided, and one or two whiffs of chloroform may be sufficient to produce complete insensibility, they should always be allowed to inhale a little fresh air during the first deep inspirations which follow. In any struggling persons, but especially in children, it is essential to remove the inhaler after the first or second deep inspiration, as enough chloroform may have been inhaled to produce deep anæsthesia, and this may only appear, or may deepen, after the chloroform is stopped. Struggling is best avoided in adults by making them blow out hard after each inspiration during the inhalation.

VII. The patient is, as a rule, anæsthetised and ready for the operation to be commenced when unconscious winking is no longer produced by touching the surface of the eye with the tip of the finger. The anæsthetic should never under any circumstances be pushed till the respiration stops; but when once the cornea is insensitive, the patient should be kept gently under by occasional inhalations, and not be allowed to come out and renew the stage of struggling and resistance.

VIII. As a rule, no operation should be commenced until the patient is fully under the influence of the anæsthetic, so as to avoid all chance of death from surgical shock or fright.

IX. The administrator should be guided as to the effect entirely by the respiration. His only object, while producing anæsthesia, is to see that the respiration is not interfered with.

X. If possible, the patient's chest and abdomen should be exposed during chloroform inhalation, so that the respiratory movements can be seen by the administrator. If anything interferes with the respiration in any way, however slightly, even if this occurs at the very commencement of the administration, if breath is held, or if there is stertor, the inhalation should be stopped until the breathing is natural again. This may sometimes create delay and inconvenience with inexperienced administrators, but experience will make any administrator so familiar with the res-

piratory functions under chloroform that he will in a short time know almost by intuition whether anything is going wrong, and be able to put it right without delay before any danger arises.

XI. If the breathing becomes embarrassed, the lower jaw should be pulled, or pushed from behind the angles, forward, so that the lower teeth protrude in front of the upper. This raises the epiglottis and frees the larynx. At the same time it is well to assist the respiration artificially until the embarrassment passes off.

XII. If by any accident the respiration stops, artificial respiration should be commenced at once, while an assistant lowers the head and draws forward the tongue with catch-forceps, by Howard's method, assisted by compression and relaxation of the thoracic walls. Artificial respiration should be continued until there is no doubt whatever that natural respiration is completely re-established.

XIII. A small dose of morphia may be injected subcutaneously before chloroform inhalation, as it helps to keep the patient in a state of anæsthesia in prolonged operations. There is nothing to show that atropine does any good in connection with the administration of chloroform, and it may do a very great deal of harm.

XIV. Alcohol may be given with advantage before operations under chloroform, provided it does not cause excitement, and merely has the effect of giving a patient confidence and steadying the circulation.—*Lancet*, Jan. 18, 1890, p. 158.

3.—REPORT OF AN EPIDEMIC OF INFLUENZA (140 CASES) OCCURRING AT THE ROYAL ASYLUM, EDINBURGH.

By GEORGE M. ROBERTSON, M.B., and FRANK A. ELKINS, M.B.,
Assistant Physicians to the Asylum.

We here record, with the permission of Dr. Clouston, our experiences of a severe outbreak of influenza, occurring in this asylum. During the second and third weeks of December, scattered cases of illness, which we did not at the time differentiate from ordinary colds, occurred; but during the fourth week of the month we became certain that the epidemic was amongst us, by the daily invasion, by the numbers attacked, and the nature of the symptoms. By the end of the first week of January there had been about fifty cases, and during the second week about sixty more were added to the list. Since then the cases have been fewer in number, and at the present time (January 24th) we have only two or three cases, excluding those still suffering from sequelæ.

General Summary of Symptoms.—The symptoms have been extremely various and numerous, but we have noted the following as the principal ones. The symptoms which almost always occurred were frontal headache and bodily pains. The headache was sometimes very severe, and was accompanied by giddiness. It almost

invariably passed away in twenty-four hours. The pain most complained of was in the lumbar region, resembling lumbago, but this was usually accompanied by neuralgic or muscular pains in many other parts, especially in the legs. These pains were much more persistent than the headache, and occasionally remained during convalescence. A slight respiratory catarrh usually accompanied these symptoms. There was a dry cough, with a tough scanty sputum, and there was coryza with suffusion of the eyes. The "running" from the eyes and nose, though often present, was not very prominent in our cases, nor was sneezing a marked symptom. The temperature was an important guide, and at the beginning of well marked cases was almost always above 100°. The attack was marked by suddenness of onset and a few hours before the headache and rise of temperature occurred the patient appeared and felt in his usual health. A slight rigor or a feeling of chilliness usually ushered in the attack. After a duration of about three days, during which time the symptoms gradually disappeared, the temperature fell to the normal. The convalescence was slow, and was marked in almost all cases by extreme weakness. Having given an outline of the disease, we will now describe in detail the various symptoms.

Cerebral Symptoms.—The frontal headache has already been mentioned as being the most constant, and it was also the symptom most complained of. Along with this there was always a disagreeable feeling described as giddiness, lightheadedness, or swimming in the head. The highest nervous functions were affected. There was generally considerable mental depression, and a complete "giving in" to the disease without desire or ability to resist, the patient at once taking to his bed. There was also amongst the sane a want of attention and concentration of thought, so that reading and discharge of business was rendered impossible. This often persisted for a day or two after recovery. The sleep, especially during the first night of the disorder, was disturbed by disagreeable dreams, and in four of our cases delirium occurred. Most cases complained of sleeplessness, and in four cases there was persistent insomnia necessitating the use of hypnotics. In cases of delusional insanity, especially of the suspicious variety, the mental symptoms were aggravated.

Neuro-muscular Symptoms.—Pain in the lumbar region has been mentioned amongst the constant symptoms, and was nearly as distressing to the patient as the frontal headache. Pains of a similar character might exist in any region of the body, the patients often saying that they felt as if they "had been beaten" all over. Next in frequency to the back, the calves of the legs and the thighs were most affected by the pains, and in one case (a female nurse) this symptom was so severe as to induce a hysterical condition. Usually there was no increase of pain on pressure. There was

often a deep-seated aching of the bones of the extremities, and only very seldom were the pains localised at the joints. The pains were often of a purely neuralgic character, rarely localised to one spot, and generally of a darting and shooting character in the limbs. Intercostal neuralgia was complained of, and also aching pains in the eyeballs, increased on pressure. The feeling of water being poured down the back, as well as flushings of heat, were frequently noted, and these symptoms often persisted during convalescence. During the attack there was a feeling of muscular weakness, in many cases amounting to prostration, and in six cases there was fainting. During convalescence there was almost invariably great weakness complained of for two or three days, so that fainting has also occurred at this period. This muscular weakness we consider a most important symptom of the ailment. It was alluded to without suggestion by almost all the patients, and by statistics we found it to be the most frequent symptom. After the attack the handwriting was shaky and deteriorated, and the gait occasionally unsteady, even when marked weakness had disappeared. The convalescing patient was quite unfit for either mental or bodily work. Marked rigors were rare, but in the large majority of cases slight ones occurred. Patients seldom referred to them unless directly questioned on the subject.

Alimentary Symptoms.—The appetite was always impaired, and in many cases there was loathing of food and nausea. Vomiting was frequent as an initial symptom, and in some cases continued for a day or two, and caused great exhaustion. Constipation often occurred, while in a smaller number of cases there was diarrhœa, in two cases with blood in the stools. The diarrhœa was hardly ever an initial symptom; it was sometimes preceded by constipation, and was readily set up by laxatives. Flatulence was a common symptom, and was accompanied by severe “colicky” pains. In some cases there was pain and tenderness on pressure in the region of the liver. The tongue was very slightly furred in the majority of cases, but in those with severe abdominal symptoms there was a thick creamy fur.

Respiratory Symptoms.—The symptom of cold in the head was frequently, but certainly not invariably, present. If there was a discharge it was slight, watery, and only of a few hours’ duration, although it might recur. Sneezing was rare. The conjunctivæ were suffused in many cases, and there was often slight lachrymation. In those cases in which the above symptoms were well marked, there was swelling of the nose, accompanied by a redness and swollen appearance of the eyelids. Epistaxis occurred in two cases. Slight transitory hoarseness and sore throat were often complained of, and on examination only congestion of the pharynx and tonsils was observed. Over three-fourths of the cases complained of a dry cough; it was occasionally troublesome, and generally

persisted well on in convalescence. The sputum was scanty, tough, and difficult to get up, and was not present during the first day or two. Pain in the chest, as in bronchitis, was sometimes complained of. Examination of these cases always revealed sparse dry *râles*, and in some cases moist *râles*, at the bases. Several of these cases passed into acute bronchitis, pleurisy, and pneumonia, and all the fatal cases were due to chest complications.

Circulatory Symptoms.—During the fever the pulse was of course quickened, and during convalescence it was soft, small, and weak, but we observed nothing else of special value regarding it. As regards the condition of the heart, a most serious and not infrequent complication was dry pericarditis. The skin was usually congested, and over the face and trunk, more especially, there was a reddish flush when the temperature was high. The face had occasionally a dusky congested look. No decided eruption was noticed, but in three cases there was herpes labialis. The patients complained greatly of waves of heat and cold passing over the body, accompanied by periodic copious perspirations. This latter symptom was much more marked than in ordinary febrile states, and indeed persisted after the temperature reached the normal.

Urinary Symptoms.—Observations on the urine under the circumstances were necessarily imperfect, but in two cases there was acute catarrhal nephritis.

The *Temperature* was an important guide, and was always above 100° in a typical case. When there were no complications it was always higher the first evening than subsequently, and throughout the attack the evening was almost invariably higher than the morning temperature. Unless there were complications we found the temperature fell gradually, with evening remissions, till it reached the normal. In four cases without any apparent complication it was above 104° at first; in fifteen cases, or about 10 per cent., it was above 103°, but, in the vast majority of cases, the temperature at its highest was between 100° and 102°.

The *duration* of typical cases, judging by the temperature, was from two to five days, and on an average about three and a half days. The symptoms are almost invariably much abated after the first day, although, like the temperature, there is an aggravation in the evenings. We must here mention that we have had somewhat numerous cases, showing some of the symptoms of influenza in a mild form, such as coryza, headaches, or pains and aches. In these cases the temperature might be a few points above normal, but the symptoms passed off in a day or so, and the patients did not require to go to bed. These cases are not included in our statistics.

During *convalescence* the patients felt well whilst in bed, and were very anxious to rise, but on getting up discovered that they were exceedingly weak and giddy. When they attempted to go about and do work they found themselves by evening completely

exhausted. They still remained subject to shiverings, flushings, and perspirations, and there was a liability to relapse.

Sequelæ.—The rheumatic pains in some parts of the body might last for some days or a week. Several cases complained of sore throat, and the majority had a slight cough for a week after the attack. Anæmia to a greater or lesser extent was always present, and although all lost weight during the illness, some, especially those with abdominal symptoms, became much reduced and very weak. The appetite remained very poor.

Relapses.—So far we have had 13 relapses, 9 being males, and 4 females. In other words, of the 140 attacked, 9·2 per cent. have relapsed (12·3 per cent. males, and 5·9 per cent. females). As a general rule the second attack was more serious than the first, and headache and fever always recurred. The majority of cases had a severe pulmonary attack (bronchitis or pleurisy), and in nearly a half diarrhoea occurred. In all relapsed cases there was some distinct exposure to cold air, usually by going out of doors too soon, and in no case did a relapse occur so long as the patient was in bed or strictly confined to a heated room. The period elapsing between the exposure and the symptoms of the second attack was very short; in 4 of the 13 cases the relapse occurred the day after going out of doors, and in 3 others it occurred within 24 hours of leaving the heated sick room for the purpose of going to the water-closet, where ventilation is active. Our opinion of the period of incubation of the first attack is that it is very brief, and that its duration is within 24 hours, though we have few definite observations on this point.

Complications.—The most frequent complication, and one which occurred in all the fatal cases, was a species of pneumonia. It occurred in 14 cases, 13 males and 1 female, of which 10 males have died, and one more male is likely to succumb. It attacks both bases as a rule, and is accompanied by a high temperature, always above 104° , in three cases, 106° , and in one case 108° previous to death. It must be remembered, however, that some of these were cases of general paralysis of the insane, in which the temperature might rise from nervous causes. The pneumonia was not of the pure croupous variety; bronchitis always preceded it, and it seemed to be rather a spread of the inflammatory process to the terminal tubules of the bronchi, and finally to the alveoli. The condensation was gradual, and the respiratory accompaniments were always crepitations of the median coarse variety, with a few dry *râles*. The sputum, though fibrinous, was frothy, and, though occasionally streaked with blood, was never rusty-coloured. Bronchitis, though not so serious a complication, was a more common one, and frequently required active treatment. Pleurisy, always the dry form, occurred in several cases, sometimes singly, but generally accompanying the pneumonia. Pericarditis was discovered in 5 of

the 10 fatal cases, and in one other case. In 2 there has been acute catarrhal nephritis, and in 2 others subacute rheumatism.

Deaths.—There have been 10 deaths, all male patients. The main cause of death in all these cases has been the pneumonic condition, assisted greatly, however, by the very weak general health of the patients attacked. All of the 10 cases were insane patients, and of these 6 were suffering from general paralysis and were in the third stage, 3 were over 70 years of age, and the other was an alcoholic case with very serious organic disease of the heart. It is obvious that no reliable conclusions can be drawn from these numbers which would be of use in general practice, but we give the percentage of deaths to the affected: 7.1 per cent. of the total number affected died; 13.6 per cent. of the males attacked died; and 19.6 per cent. of the insane males attacked died. No female patients, nor any official, male or female, died.

Having described the symptoms of the disease, we will now record some general facts. Out of a population of 992 persons, 140 were attacked, a percentage of 14.1, and of these 73 were males and 67 were females. Compared with the total number of males and females in the asylum, the percentages are 15.2 per cent. males and 13 per cent. females. It is thus seen that the males were slightly more subject to the disease than the females. The type of the disease was more severe among the males than the females, and this observation is strengthened by the following facts. Out of 13 relapses, 9 were males; out of 14 cases complicated with pneumonia, 13 were males; and of the 10 deaths, all were males. We suggest that this preference for the male is greatly due to the fact that the men are more in the open air, where we believe the disease is contracted. As a fact supporting this statement we find that the officials, amongst whom, moreover, the standard of health is high, were attacked in far greater proportion than the patients, the former of course having greater facilities of going about outside. Of the 175 officials 28.4 per cent. have suffered (30.9 males and 25.9 females), whilst of the 817 patients only 11.1 have been attacked (12.5 males and 9.7 females). The first persons attacked, moreover, were those who were most in the open air, the majority of them being officials, and of the patients attacked the majority were those who were much outside. Of the percentages attacked in the different wards the largest numbers on the male and female sides of the asylum were in the convalescent wards, where the "open door system" is adopted and the patients are at liberty to walk in the grounds. It has already been stated that relapses only occurred after exposure to outside air.

Our opinion of the disease is that it is certainly not a common cold, and we believe it to be a specific fever, having a definite course and duration, and affecting the whole organism. The nervous, muscular, respiratory, and alimentary systems are all

affected, and, as in other fevers, this disease always leaves its victims debilitated. It is thus distinct from ordinary respiratory catarrhs; and, indeed, in 22.9 per cent. of the cases there was no catarrh of the nasal or bronchial membranes.

Treatment.—When once it was evident that the disease was epidemic we reserved separate wards for its treatment, and whenever an individual was attacked, he or she was removed to these wards and kept in bed. The diet was light, mainly consisting of milk, many cases being able to take only milk and potash water. As regards the medicinal treatment, none of the drugs which we used affected in any noticeable degree the symptoms or course of the disease. For the high temperature we used antipyretics, and of these we preferred to use antipyrin in 10-grain doses in those cases in which headache was the most prominent symptom. When pain in the back or other rheumatic pains were greatly complained of we used salicylate of soda in 10-grain doses; we found, however, that it increased the nausea, and it was also objectionable from its reputed depressing effects. Quinine, however, in 10-grain doses was more used than either of the above remedies. For the pain in the back, if severe, we applied a mustard leaf, with relief in almost all cases. For the cure of constipation we adopted the use of soap and water enemata, having discovered by experience, that diarrhoea was readily set up by the mildest laxatives. For the bronchitis accompanied by tough sputum we prescribed: *R. Sp. ammon. aromat. ℥j; liq. ammon. acetat. ad ℥vj. Sig. A tablespoonful in water every three or four hours.* For insomnia, sulphonal 30 grs., or paraldehyde, was prescribed, and the latter made up as follows: *R. Paraldehyde ℥j to ℥ij; tr. quillaia 3ss; aq. cinnamomi ad ℥ij. Sig. The draught to be taken in water.* During convalescence we prescribed Easton's or Parrish's syrup, quinine tonics, maltine, claret, port, stout, and bitter ale, according to circumstances, at the same time increasing the dietary. The complications were treated according to the ordinary methods. In conclusion we would strongly impress upon all attacked the urgent necessity of going to bed at once, and of staying there for three days after the temperature is normal.

We would here point out that our population is entirely an adult one, with many aged people, and as the general health is decidedly below the average, an epidemic such as this is a much more serious matter to us than to the general public.—*British Medical Journal, Feb. 1, 1890, p. 228.*

4.—ON THE PRESENT EPIDEMIC OF INFLUENZA.

By J. W. DA COSTA, M.D., LL.D., Philadelphia.

Influenza or catarrhal fever, as is illustrated by the cases I have lately seen, almost invariably begins acutely. Nearly all of the

cases that I have met with started suddenly in persons previously in good health. One case came under my notice where a physician was so abruptly seized with pain in the back that he had to lie down on a bed, and with difficulty could leave the house. In other instances, not quite so marked, the severity of the pain in the back has been great and has been the first manifestation of the disease. The pain is often referred to the middle of the back in the dorsal region, and it is quite commonly observed that starting in this position it spreads downward into the legs. As described to me, the pain is at times sharp, with a dull pain persisting. The patient is never free from pain, which occasionally rises into acute exacerbations. While many of the cases begin with pain in the back, they soon have pain in the bones followed by headache and moderate fever, and then there are or are not catarrhal symptoms. In the majority of instances the fever is moderate and lasts about three or four days. The fever is at its height in from twenty-four to thirty-six hours; then it slowly subsides, and the temperature may go below normal. In one case, it passed to 96° and there was profuse sweating, something like a crisis taking place. During the period of highest temperature lasting thirty-six or possibly forty-eight hours, there is only the ordinary variation of about one degree between the morning and evening temperatures. There is really a slight continued fever, and not a fever with remissions and exacerbations as in malarial fever. As a rule, the temperature does not exceed 103° ; but, by way of variety, I have in this epidemic encountered a few cases in which the temperature at the onset unexpectedly shot up to 105° and the next day went down to about 100° , and then the case ran the ordinary course, terminating in recovery. In two of these cases bloody sputum or pure blood was at first expectorated. With the fever we have the ordinary concomitants: high coloured urine of a high specific gravity, without albumin.

Another peculiarity about the disease is the occurrence of catarrhal symptoms in the eyes and nose with cough, which is frequently laryngeal rather than bronchial. These catarrhal symptoms are, however, often absent. Some of the worst cases that I have seen have had no catarrhal symptoms whatever in the eyes, throat, or anywhere else. When the catarrhal symptoms are present they are more apt to involve the eyes, nose, throat, and larynx, than the bronchial tubes, although a fair proportion of cases have catarrhal bronchial râles, and some have even congestion of the lungs, as illustrated by the cases before you. In a few instances epistaxis comes on, and with the occurrence of high fever and debility you are irresistibly made to think of beginning typhoid.

One of the most singular features of the present epidemic is the prevalence of the nervous symptoms. These are shown by the

violent headache, the severe pain all over the body, the pain in the spine travelling downward, and also by what I have seen in quite a number of cases, hyperæsthesia or general sensitiveness of the surface. This is something more than what might be attributed to the efforts of coughing. Then, too, in some of the cases, there is delirium, not simply the delirium of inanition, as occurred in one of the cases before you, but a delirium with violent headache, this delirium sometimes taking strange forms. Besides the delirium, there are in some cases convulsions. The kind of cases I have just mentioned have probably given rise to the idea with some that cerebro-spinal fever and influenza are the same disease. The prostrating influence of the malady on the nervous system is also shown by the fact that patients often stagger on getting out of bed. This debility remains for a long time, and is often associated with considerable sweating. The pains often remain, and do not necessarily pass away on the subsidence of the rather short fever. In some cases profuse and persistent sweating is also very common during convalescence, and the patient looks anæmic and miserable. I have seen the knee-jerk absent at the height of the malady, but in the majority it is preserved. Cramps in both calves and shoulders, as well as in the chest muscles, have been reported to me by a physician as happening after the febrile stage had passed.

The main *complication* of ordinary catarrhal fever is, as you know, pneumonia, or what is called pneumonia. Looking over the records of boards of health of different cities, it will be found that the deaths from pneumonia have nearly doubled. What is called pneumonia must therefore be set down as one of the chief complications. You notice that I say "what is called pneumonia." A great many of these cases are simply heavily congested lungs, with great debility, the lungs seeming to collapse. There does not seem to be a true process of pneumonic exudation. While in many cases there is slight dulness on percussion, yet it is not absolute, and the high-pitched bronchial breathing of croupous pneumonia is found in only a few instances. There is no consolidation. This has been the characteristic in most of the cases that we call pneumonia. A great many persons when seized, and often during the height of the attack, complain of violent pain in the left side, but I have not found any friction sounds, save in one instance, and this may have been accidental. There is want of expansion of the lower part of the lung, usually on the left side, associated with this violent and persistent pain, which makes the patient think that he has pneumonia or some other grave condition of the lung.

We know nothing of the cause of this disease. It is epidemic, and I think myself that it is feebly contagious. We accept the microbic nature of its origin, but it has not been proven. The prognosis is favourable, but the general mortality is increased by

the epidemic. This is because persons previously diseased are carried off. If an elderly person with fatty heart contracts this disease, for it is no respecter of age, he would be in imminent danger. We call this heart failure, but these hearts are diseased and enfeebled still more by the malady. I have mentioned relapse. I have seen few distinct examples of this. One was that of a lady who had her first attack in the country and came to town to break it up. She was well for two weeks when she was attacked the second time. Another case was that of a gentleman who was suddenly seized with the relapse while in church, two weeks after the first attack. In a third case pneumonia occurred in the relapse. The longest interval I have known was two weeks, the shortest five days. To prevent relapse, great care is necessary in not going back to work too soon, and not exposing one's self to wet and cold, and with this there should be a judicious use of tonics, and even of stimulants.

Treatment.—The treatment must, of course, be the ordinary treatment of catarrhal affections. For the relaxed and irritated throat I have found nothing so serviceable as a gargle of salicylate of sodium, glycerine, and water. For the nasal catarrh, which at times is very unpleasant, I have found that a two per cent. solution of cocaine does the most good. The bronchial catarrh should be treated as any other bronchial catarrh, according to the exact seat and the number of râles. A good deal of the paroxysmal cough is laryngeal, and you will find that small doses of opium at night, or bromide and opium, or what I have employed in a number of cases, broken doses of Dover's powder, will give good results. One-fourth of a grain of codeine, repeated according to the circumstances of the case, is often useful; it allays the cough, induces sleep, and does not cause much sweating. Let me say here, that while perhaps the routine practice of using diaphoretics in these cases is useful, yet such drugs must be used with judgment. In some cases there is a great tendency to sweating, and you do not want to increase it, as it rather adds to the debility. The diaphoretic must be adapted to the individual case, not employed too actively, and not at all where sweating is a prominent symptom.

The debility must be borne in mind, and it is good practice to give sulphate of cinchonidine or quinine, ten or twelve grains daily. Nourishment should be kept up, and the action of the bowels looked after. The patient should not be overpurged, for, in some instances, diarrhoea is associated with the malady. For the headache and the pain in the bones I have found two remedies of especial advantage. One is antipyrin in five-grain doses, with a grain or two of quinine to prevent depression, repeated every two or three hours until the headache is relieved; the other is phenacetin in five-grain doses. In one instance where these two drugs failed to

relieve the headache I found gelsemium to answer. The general strength and the circulation must be looked after, and especially during convalescence the patient must receive nutritious food, alcohol, small doses of strychnine, and, later, iron. I shall not speak of the treatment of the complication pneumonia, but let me point out, in conclusion, that you should keep your patients for a long time on tonics which may prevent relapse, and, indeed, it may be a question whether it would not be advisable when the disease makes its appearance in a household to place the whole family on the use of tonics, such as cinchonidine or quinine, as a preventive. My experience is that while this will not ward off the disease, it renders the attack less severe.—*Medical News*, Jan. 18, 1890, p. 61.

5.—ON CHRONIC TUBERCULAR PROCESSES IN SEROUS MEMBRANES.

By R. DOUGLAS POWELL, M.D., F.R.C.P., Physician Extraordinary to the Queen; and Physician to the Middlesex Hospital.

In introducing the discussion on this subject at the Annual Meeting of the British Medical Association, Dr. Douglas Powell alluded to it as being one of arbitrary limits, including cases not acute, in which the disease was in the first instance limited to one serous membrane, spreading perhaps to others chiefly through lymphatic paths; in which the fever, low in range, was of remittent or irregularly intermittent type, the intervals of apyrexia being often long; in which the constitutional state was that common in tuberculous subjects, of the erethic type, with quickened pulse, harsh dry skin, wasting body, and associated with these phenomena were the local signs and symptoms of the disease. Tubercular disease of serous membranes was rarely primary; if general, a perhaps forgotten mass of old tubercle was usually in the background; if local, there was commonly precedent disease of the subjacent or neighbouring organ. Dr. Powell accepted as satisfactory the views—as he interpreted them—of Mr. Barker, who admitted the tubercle poison as disseminated in the blood current, and on the other hand accepted the necessity of a receptivity or preparedness of tissue of more or less embryonic conformation in young people, the embryonic type in adults being represented by the young cells of plastic exudations. Dr. Powell was inclined, however, to attach more importance to activity of growth and function in certain parts at certain ages as rendering them liable to strain or lesion, and so vulnerable to the onslaught of tubercle in those hereditarily or by evil conditions of life predisposed. Tubercular meningitis as a chronic disease was in his experience almost unknown. Tubercular pleurisy was by itself, as shown by post-mortem statistics, a rare disease. Was it so rarely

met with clinically? It was well known that pleurisy commonly preceded phthisis, but were not such cases of pleurisy in the first instance tubercular, and indeed secondary to present tubercle in the lung? He was increasingly inclined to think so, and related two cases illustrative of his experience. In one of these cases, the clinical history, suggesting possibly old tubercular lesion, was corroborated by the discovery by Dr. Wethered of elastic tissue encrusted with lime salts in the sputum. There were no clinical rules of very precise application for the recognition of early cases of tubercular serous effusion; the insidious onset and symptomatology, the preceding symptoms, the duration, and the possible affection of other membranes were in point. Dry pleurisy at the apex should be always regarded with much suspicion. Dr. Burney Yeo had described three interesting cases of apex pleurisy in young people attended with peculiar hard coughs, and in one with some stained mucous sputum, all of which got well; what was Dr. Yeo's experience of the future of such cases? It was difficult to recognise slight pulmonary change, especially in the presence of effusion. Examination of sputum, if any, would help, but a continuing slight febrile action and a persistently quickened pulse were of much importance, a secondary rise of temperature after the third week of a pleurisy being (excluding empyema) very significant. The appearance of the fluid was not characteristic, it was mostly clear, sometimes smoky or blood-stained or opalescent, not often purulent, excluding cases of perforation. Examination of the fluid for tubercle bacilli had proved unsatisfactory, the organism not having been found in many cases whose tubercular nature was otherwise demonstrated. Dr. Powell related a case in which after several failures bacilli had been found in certain tiny flecks of an otherwise clear effusion. This experience, and that of a case some years ago, in which, after failing to find bacilli in the pus of an empyema, plenty had been discovered in a drop removed on the point of a probe from the pleural surface, led him to believe that the bacilli chiefly germinated in contact with the pleural surface, and were not to be found free in the effusion, except in minute flecks or sheddings from that surface. Cultivation and inoculation experiments were also at present not to be trusted in diagnosis. The case he related was also one in which rapid absorption and recovery had ensued, although the effusion was distinctly tubercular. He thought he had observed many such cases. What was their future? With the practical rest brought about by adhesion, and in the absence of fresh pabulum, the bacilli became extinct or dormant, and the tubercle underwent fibroid degeneration, so that indefinite quiescence might be hoped for. The disease might recur in another membrane or in the lung, but not necessarily in the same lung. Phthisis advanced by a succession of attacks, and any temporary lull might become permanent

quiescence. Caseation was comparatively rare in serous membrane tubercle.

In chronic tubercle of the peritoneum with similar constitutional symptoms we observed colic pains, intestinal flatulence, irregular or relaxed bowels, enlarging abdomen with impaired resilience and elasticity, and a doughy resistance and movement *en masse* under palpation, significant of intestinal adhesion, slight tenderness, and sometimes peritoneal friction sound. The effusion often proceeded to ascites, and in some cases after a time the physical signs became remarkably altered, the resonant intestines being held back to the flanks. In those cases, as in one recently under Dr. Powell's care, and one recorded by Sir S. Wells, the diagnosis from ovarian cyst was often very difficult. The fluid might be absorbed and the patient recover, as not infrequently happened; or in what might be regarded as the third stage, signs and symptoms arising from contractile deformity of the omentum and mesentery ensued; masses and bands were to be felt resembling cancerous masses, contortions, irregular peristalsis, obstruction, partial or complete, due to constriction by or entanglement around the contracting and thickened bands occurred. Dr. Powell here related a case in point, and remarked that the contractile character was an important feature of chronic tubercle, especially so in the comparatively free abdominal folds of the peritoneum. In other cases perforation of the intestine and localised abscesses, perhaps pointing through the abdominal wall, occurred. Dr. Fenwick had found ulceration of the intestines recorded in only eight of his forty-seven collected cases. Dr. Powell thought that ulceration or tubercular disease of some, often a pelvic, organ was more usually present. He remarked on the fact that had been noted of the shutting off of pelvic peritonitis from the general peritoneum, and concluded this part of his subject by alluding to the insidious and often obscure incidence of the disease, the great importance in diagnosis of watching temperature and pulse in association with slight abdominal symptoms. He had seen two early cases diagnosed and treated for neurasthenia. Pericarditis, joint tubercle, and tubercular testis were alluded to. In discussing the treatment, Dr. Powell alluded to the scanty growth and feeble vitality of serous membrane tubercle, and the tendency to obsolescence. The dangers were from inflammatory damage to subjacent organs, and from contortions and strangulations of vital parts; in other cases from perforations and suppurations. Nothing at present known would cure tubercle, the bacillus would cheerfully withstand antiseptics in doses beyond the toleration of its host. Mercury was the most hopeful antiseptic, but reducing vitality reduced also the patient's resisting powers. The securing of mechanical rest to joint, chest, or abdomen was very important in combination with good hygiene.

The utility of operative measures as a routine treatment of

tubercular joints was still a matter of debate. Anything like complete aspiration in tubercular pleurisy was attended with danger of active tuberculosis, whilst such effusions were, he had shown, very amenable to ordinary measures. Free incision and drainage might in some cases come to be advocated as affording rest rather than strain to the pleura.

On the question of opening the abdomen we were collecting experience, and in forming a judgment it should be remembered : —1. That many cases had a favourable issue under careful treatment. 2. That the tubercle could not be removed by operation, arrest and obsolescence being all that could be looked for. 3. That the successful cases hitherto met with were cases, he believed, like that of Sir Spencer Wells, in which the peritoneum had inadvertently been opened in non-suppurative cases. 4. The cases most needing surgical help were those analogous to empyema, in which, however, the presence of perforations and intestinal ulceration often rendered such treatment of doubtful utility. The matter was one for very useful discussion and new experience.—*British Medical Journal*, Dec. 14, 1889, p. 1317.

6.—ON THE DIETETICS OF ACUTE DISEASE.

By I. BURNES YEO, M.D., F.R.C.P., Professor of Therapeutics, King's College; Physician to King's College Hospital, London.

It has appeared to me that we may formulate two chief rules which should guide us in the feeding of cases of acute disease: 1. Endeavour to utilise food to the greatest extent that is safe and possible for the purpose of checking the waste of tissue which is associated with the febrile process. 2. Be careful to administer no food that cannot be readily absorbed and assimilated. Do not overlook the fact that the functions of the digestive organs are gravely impaired during fever, and, therefore, if we give food which the patient is unable to assimilate, this undigested food will decompose in the stomach and intestines, and cause much local irritation and augment the pyrexial movement. I have been accustomed to teach that, in acute and short typical febrile attacks, such, for instance, as one of acute croupous pneumonia of average severity and running an average course, we should not manifest any anxiety as to the taking of much food, unless in the aged and feeble, for by forcing the consumption of a considerable quantity of food in such cases, in the absence of all appetite, and with obvious febrile derangement of the digestive organs, we do more harm than good. There is a general consent amongst all authorities that, owing to the interruption of normal gastric digestion in fever, all food should be given in the fluid form, that is, in a form that can be readily and immediately absorbed, that it should be given in small quantities and at short intervals. The two kinds of fluid

food most commonly used in cases of acute disease are, first, milk, and, secondly, beef-tea, and under the latter denomination I would ask to be allowed to include all fluid meat extracts, broths, soups, meat juices, &c.

The very great convenience of milk as a food has, I think, acted, in a certain sense, as a snare, for there is a tendency, especially with nurses, to think no evil of that which is so handy, requires no preparation, and gives so little trouble. But the great drawback to the use of milk in acute disease is the fact that, although a fluid food out of the body, it becomes a solid food in the stomach or intestine. No doubt it is an excellent food in all cases in which it is well tolerated and quickly digested and absorbed, but there are many cases in which it is not so, and when these happen to be cases of typhoid fever very serious injury may be done the patient if this peculiarity is not observed. I have seen several cases of typhoid in which the administration of milk has not appeared to cause any gastric disturbances, but yet has produced great intestinal irritation, and the motions have been largely composed of firm milk curd. One of the reasons why milk so frequently disagrees with patients is that it is given in too concentrated a form and in too great quantity.

Sir Henry Thompson has called attention to the absurd custom, now so prevalent, of using milk as if it were a simple beverage, and to drink it, like water, with quantities of solid meat and other food. Why should we hesitate to dilute the milk we give to fever patients? They require water, pure water, in much larger quantity than they usually get, and yet we hesitate to mix water with the milk we give them. Their digestive powers are excessively feeble, and yet we will give them concentrated foods! When we wish to rely on milk as a food in acute disease we should give it in small quantities at a time at short intervals, mixed with water, or, better, with an alkaline water, such as Vichy or Apollinaris. I am accustomed in hospital practice to prescribe powders, each containing 20 grains of bicarbonate of soda and 20 grains of common salt, and to direct that one such powder should be added to every pint of milk, and this is to be diluted, when administered, with an equal quantity of water. Two ounces of milk and two ounces of an alkaline water every hour (and a fever patient requires a drink every hour) will give the patient two pints and a half of milk a day. I am, of course, thinking of cases in which the digestion of milk is difficult.

Greater use ought also to be made of whey in those cases in which milk is not digested readily. I have often used it in private practice and in hospital with great advantage. It can be prepared in a pleasant form by boiling a pint of milk with two or three teaspoonfuls of lemon-juice, and a few fragments of lemon-peel for the sake of flavour; if the curd be well broken up, then strained through muslin, and all the fluid pressed well out of the curd, much

of the cream and some of the finely-coagulated casein will pass into the whey, which will thus become a fairly nutritive fluid. If necessary, it can be made more nutritious by the addition of meat juice. Or if an egg be whipped up with twice as much boiling water, added slowly, and then strained, a fluid will be obtained holding in suspension a considerable quantity of albumen coagulated in fine particles, and this may be added to whey (or to beef-tea), thus supplying the defective albuminate.

Another form of fluid food very extensively used in cases of acute disease is "beef-tea;" this term is usually applied to very strong extracts of beef, and this fluid is generally estimated in exact proportion to its concentration. Why, I have never been quite able to understand. As I have already said, a patient with pyrexia requires and should be given much water; why not give him some of that water with his beef extract? The intense dislike of beef-tea which many patients manifest is especially directed to this very concentrated form. It is mere slavery to routine—mere want of resource—that has perpetuated the invalid's sad restriction to milk and beef-tea. Conceive the dread monotony of a six or seven weeks' limitation to these two articles of diet. Now there are many forms of meat infusion or meat extracts that can be rendered very palatable by suitable care in preparation, infinitely better adapted to serve as foods in pyrexial cases than strong beef-tea. Well-made mutton, veal, and chicken broths, to which some well-strained oatmeal or barley gruel can be occasionally added, make excellent invalid foods. They contain in a dilute form the same constituents, and, with the additions I have named, even more nutritive alimentary principles than beef-tea. But clear soups—*consommés*—are exceedingly agreeable, readily absorbable, and stimulating foods, and they usually contain some vegetable juices and salts which greatly add to their food value.

Sir William Jenner some time ago directed the attention of the profession to the remarkable oversight so frequently practised in the feeding of cases of fever, of the omission of vegetable juices from their dietary. It is quite easy to obtain the juice of fresh boiled vegetables and savoury herbs, and to add it to these clear animal soups. "Fruit soups" are used in Germany, and are made by boiling fresh or dried fruits with water, expressing the juice and straining. I am not one of those who think ill of beef-tea as an invalid food, but I object to making either beef-tea or milk the universal invalid food, and I see no reason why we should desire to use such very concentrated beef-teas, when we know that fever patients need so much water. I regard beef-tea as an excellent stimulant and restorative as it contains very little, if any, albuminates in solution. But it contains gelatin, which is very readily digested, and appears to serve as an "albumen-sparing" food in the body, as well as saline and stimulating extractives.

I was greatly surprised a short time ago on being told by a hospital sister, that in the hospital she nursed in they were forbidden to put any salt into the food of the typhoid patients. Surely this was a very unwise regulation. If chloride of sodium is so important in health, may it not be quite as important in disease?—*British Medical Journal*, Dec. 7, 1889, p. 1261.

7. —ON FOOD FOR INFANTS.

By I. BURNEY YEO, M.D., Physician to King's College Hospital.

“Fortunate is the babe,” says an American physician, Dr. Louis Starr, of Philadelphia, “that in our day of advanced civilisation and city living, can draw from the breast of a robust mother an abundant supply of pure, health-giving, tissue-forming food,” and with that expression of opinion I am sure we all agree. The mother failing then, either from inability or disinclination, to suckle her infant, we fall back on the “wet nurse” as the next best resource. A question of some importance is the extent to which the food of the nurse is capable of influencing the health of the child? It is said to be especially capable of influencing the quantity of fat in the milk, and Zaleski has pointed out that milk containing an undue proportion of fat is prejudicial to the infant. A highly nitrogenised diet, he found, caused a marked increase in the fat, while it reduced the proportion of sugar, and had little effect on the other constituents. Alcohol had the same effect. He insists that wet nurses are usually over-fed with butcher's meat, ale and porter; that they take too little exercise, and that their health is liable to suffer from a rich and over-albuminous diet, more particularly as they have probably been underfed in their antecedent life. He cites a case in which he found as much as six per cent. of fat in the milk, while the suckling infant was always ailing. The nurse had been a poor girl, and her whole course of life had been changed on becoming a wet nurse; her own child's health also suffered. An immediate return to her former mode of life was attended with the best results.

Most authorities are agreed as to the date at which food other than milk may wisely be introduced into the infant's dietary. Farinaceous food ought never to be given before the fourth month, and better not until after the seventh or eighth, when the teeth and salivary glands begin to be developed. It has been suggested that some preparation of entire wheat flour should be given at this period (Chapman's), containing the outer part of the grain, and therefore the necessary mineral substances. Any of the many malted foods may be usefully introduced at this period (Liebig's, Mellin's, Benger's, Savory and Moore's, Nestlé's, &c.). Between the tenth and twelfth months breast feeding may be gradually suspended, but milk should still form the staple article

of diet up to eighteen months. At this date a little meat may be wisely introduced in the solid form, to furnish some employment to the masticating organs, which by this time are ready for some exercise. The American author I have already quoted, and who has contributed a very full and able article on the "Dietetics of Infancy and Childhood" to Sajous's *Annual of the Universal Medical Sciences*, vol. iv., 1888, makes a remarkable statement. He says: "There can be no doubt—though the statement is a bold one, and seemingly contrary to Nature—that, taking the average, infants properly brought up by hand are better developed and enjoy more perfect health than those completely breast fed. Of course there is no artificial food equal to the natural—the sound breast milk of a robust woman—and a child fed upon this must thrive if other circumstances are favourable. Unfortunately the woman who has sufficient health and strength to furnish an abundant supply of good milk during the ten or twelve months of normal lactation is unique in our day, and the great bulk of those who do nurse children grow pale, thin, and feeble, and give milk which, though sufficient in quantity to fill the suckling's stomach and satisfy the cravings of hunger, does not contain enough pabulum to meet the demands of nutrition. Such mothers always complain that their children are puny, peevish, and always ailing, and wonder why their neighbours' babies fed upon the bottle are so round, jolly, and healthy. The explanation lies in the simple fact that good cow's milk is better than bad breast milk." This, of course, applies to American mothers. I hope our English mothers are not in quite so bad a plight.

The chief difficulty in supplying a suitable substitute for human milk appears to depend not so much on differences in the quantity of the different constituents but on differences in quality, especially in the quality of the albuminate; for human milk varies considerably in its composition, according to food, period of lactation, and other circumstances. The nitrogenous constituents have been found to vary from 4.86 to 0.85 per cent. The fats and salts also vary greatly, so that the maximum has been found to be three times as much as the minimum. The sugar is the least variable, and gives nearly a uniform standard of 7 per cent. The most important difference between human milk and cow's milk—upon which on account of its cheapness and abundance we are compelled chiefly to rely—is that the nitrogenous constituents are differently affected by coagulating agents. According to König, the total amount of albuminoids in cow's milk coagulable by acids is far greater—perhaps four times greater—than the non-coagulable portion. In human milk the reverse is the case, and the non-coagulable portion exceeds—is perhaps twice as great as—the coagulable part. Again, with rennet, cow's milk coagulates into large firm masses; human milk forms a light

loose curd; and the same occurs in the stomach. Asses' milk and goat's milk resemble human milk in forming a loose flocculent curd.

All artificial foods should, like human milk, clot in fine flakes, therefore cow's milk has to be modified by preparation, in its chemical composition and physical properties, to make it a fit substitute for human milk. To do this we have to (1) dilute with water, in order to bring the proportion of casein down to the proper level; (2) to add cream, in order to bring the proportion of fat up to the proper level, and (3) to add sugar of milk, in order to bring the proportion of sugar up to the proper level. Sugar of milk is generally recommended for the latter object, as cane sugar tends to set up acetous fermentation. Ashby and Wright, however, have failed to satisfy themselves that milk sugar is, in any way, superior to cane sugar, while they complain that it is expensive, and tends to pass into lactic acid. Probably with a healthy infant, whose digestive organs are acting healthily, there is no objection to the use of cane sugar. Then, to prevent the formation of firm indigestible curd two methods have been recommended; one is to add an alkali, such as lime water or carbonate of soda; the other is to add some mucilaginous thickening substance, which may, as it were, get between the particles of casein and prevent their clotting together into firm curd. For this purpose barley jelly, solution of gelatin, or the addition of a certain proportion of one of the prepared foods has been recommended.

The use of condensed milk is another debateable point. It has the advantage of keeping better than cow's milk, and it is said to be more readily digested by young infants, and they appear to thrive on it. Some authorities, on the contrary, maintain that is a delusion, caused by the fact that "condensed" milk is largely diluted with water, and cow's milk not sufficiently diluted; that the infants appear to thrive because condensed milk has a large proportion of added sugar, which makes fat. It therefore makes large babies and counteracts the tendency to constipation; but that it does not contain enough nutrient substances to supply the wants of a growing infant. "Infants fed upon condensed milk," says Dr. Louis Starr, "though fat are pale, lethargic, and flabby; although large are far from strong; have little power to resist disease; cut their teeth late, and are very likely to drift into rickets before the end of the first year." He considers it never safe to bring up children solely on this food; it should be only used occasionally for convenience, as when travelling, &c. Ashby and Wright doubt the value of the evidence brought against condensed milk; they have seen many unquestionably healthy children brought up on it from birth. It is undoubtedly convenient; it does not readily turn sour, and it may, they think, be substituted with good effect for fresh cow's milk, when the latter disagrees and causes vomiting, or when cows are being fed on

turnips or other watery food, or in hot weather when milk is apt to turn sour. The deficiency in casein may be supplied by the addition of a little white of egg or raw meat juice, and the addition of a little cream will supply any deficiency in fat.

Predigested foods are of great value in certain troublesome cases—partially peptonised foods—the process being arrested before any distinctly bitter taste has been developed. They should not, however, be continued longer than is necessary, as the digestive organs no doubt require to be exercised in order to be healthily developed, as is the case with all other organs of the body.—*British Medical Journal*, Dec. 7, 1889, p. 1262.

8.—SPONTANEOUS RECOVERY FROM GRAVES'S DISEASE (EXOPHTHALMIC GOITRE).

By JONATHAN HUTCHINSON, LL.D., F.R.S., &c.

[Mr. Hutchinson contributes the following note on the non-liability to recurrences of this disease, and on the great importance of change of climate in its treatment.]

One of the most remarkable features in the clinical history of Graves' disease is its spontaneous tendency to recovery, and the patient's freedom from all risk of relapse when once recovery is established. It may, indeed, be conveniently taken as a type-example of a certain class of nervous disorders which are essentially transitory if the patient survives the violence of the first attack. In this feature they differ from another group in which central disorganization occurs, and the disease, however slow, and even when susceptible of temporary relief, is almost invariably aggressive to the end. Of the latter locomotor ataxy is a good type.

I cannot better illustrate what I have said above than by detailing a narrative which has just been given me by a very intelligent lady. I had nothing to do with the treatment of her case, but I could mention several others from my own experience exactly like it. Mrs. Z. is now a healthy-looking woman of 40; her eyes are decidedly full, but there is nothing that a stranger would notice, nor is there any appreciable bronchocele. Her history is, that ten years ago she all but died of Graves' disease. She was reduced to a skeleton, had constant diarrhœa, and was so weak that she was lifted from bed to couch and never allowed to sit up. Often she was not expected to live the night through, and she probably owes her life to the sedulous attention of her family surgeon, who from time to time succeeded in combating complications which threatened to prove fatal. The illness lasted altogether about two years, and was attended by the usual conditions:—great prominence of the eyes, a large soft pulsating bronchocele, with debility, palpitation, and loss of flesh. Mrs. Z. was at the time it began unmarried. She had always before been

exceedingly strong and capable of much fatigue. She had had a good deal of worry and anxiety, and had been in the habit of walking to excess before the symptoms set in. They did so rather suddenly. Her friends used to appeal to her "not to stare so," and asked her "why she looked so strangely at them." Soon after these observations were made she found herself getting weak, and in a couple of months was scarcely able to walk.

I inquired as to what she thought had been the means of cure, and she told me that after her last and worst attack of diarrhoea all drugs had been disused. Subsequently she took champagne very freely, and as soon as strong enough to be moved she was taken on a couch to the sea. From this date her recovery was steady. Three years later she was well enough to marry, and during five years of married life she had enjoyed excellent health, though not nearly so strong as before the illness. She did not remember that any special disturbance of menstruation had produced or attended the illness.

I have thought this case worthy of mention, not because it is an extremely rare one, but because I believe it a well-characterized example of what is the rule. Many patients with Graves' disease pass, in spite of all treatment, to the most extreme condition of debility. In that stage many die, but more than a few turn the corner and then never look back. Medicines in many cases do not seem to have much share in the result. My experience would, however, lead me to believe that we do not resort sufficiently early to change of air. In all cases the effect of long-continued residence in a mountain air ought to be tried, and if it does not help, the patient should be removed to the sea. No instance of recurrence of the disease after once recovery was well established has fallen under my notice.—*Archives of Surgery*, Oct. 1889, p.167.

9.—ON CHLORALAMIDE AS A HYPNOTIC.

By W. HALE WHITE, M.D., F.R.C.P., Senior Assistant-Physician to Guy's Hospital, London.

In his exhaustive account of many of the new hypnotics (see pp. 151, 155, of this volume of the *Retrospect*), Professor Leech says of chloralamide that the observations upon it are so far few in number. I have recently given it to twenty patients suffering from various illnesses, in all of whom insomnia was a troublesome symptom. Brief notes are appended. It will be seen that the drug produced comfortable sleep in all the patients except two; one of these was suffering from delirium connected with cerebral hemorrhage, and the other was admitted with rheumatic fever complicated by delirium tremens and salicylic poisoning. Both these patients died shortly after admission. It is noteworthy that some of the other patients were suffering from

extremely painful diseases, and yet chloralamide produced sleep; thus a woman who had a thoracic aneurysm preferred it to morphine, and another patient who had carcinoma of the stomach also slept better with chloralamide than with morphine. The patient with carcinoma of the liver suffered intense pain, yet she dozed comfortably after chloralamide. The man suffering from cerebral softening who was quieted by the drug is also a striking case. Probably the house-physicians, sisters, and nurses are the best judges of hypnotics, as they see the patients frequently during the night. They all tell me that those who take chloralamide sleep well and comfortably after it, and the sisters of the three wards in which I have used it tell me that the patients sleep better after chloralamide than after any of the hypnotics which have been introduced during the last few years. My own experience, and what the patients themselves tell me certainly agree with this. In none of the twenty patients to whom I have given it—and many of them have taken several doses—have any effects followed that can be looked upon as contra-indications to its use. Never have I observed any depressing results, nor has headache followed its use. The time which elapses between its administration and the commencement of sleep varies between a quarter of an hour and two or three hours. If it is given in the evening, when once asleep the patient usually sleeps quietly till morning. Some writers have stated that occasionally after a dose in the evening the patient does not go to sleep till the next morning, and that he remains asleep all the day. This was so with one of my patients; but it must be remembered that, as the drug is feebly soluble in water—20 grains take five hours to dissolve in 2 ounces of water—it is often given as a powder with some milk. It was administered in this way to my patient who slept the next day, and I should think that some of these cases of delayed action were due to delayed absorption. Now I always prescribe it with spirit; 20 grains will dissolve in 1 drachm of rectified spirit in fifteen minutes, and water may be added to this solution without reprecipitating the drug. A good way of giving it is to tell the patient to dissolve it in a little brandy, add water to his liking, and drink it shortly before going to bed. If given in milk, not only is it insoluble, but it is difficult to swallow, for it sticks to the sides and bottom of the glass. The taste is slightly bitter, but by no means disagreeable. It should never be prescribed with alkalis, for they decompose it, nor should hot water be mixed with it, for it decomposes at 148° F. For an adult, 20 to 60 grains—the exact amount depending upon the cause of the insomnia—is the dose; usually 30 grains will suffice. It has the advantage over sulphonal that it is only half the price, and it has the great advantage over paraldehyde that it has no nasty smell or taste, nor is it difficult to dissolve.

The few cases which have been published quite bear out the cases recorded here. It would seem that in chloralamide we have a safe hypnotic, which hardly ever has any depressing effects, which does not produce indigestion, and very rarely gives rise to any unpleasant results. We do not of course yet know what harm may result from its prolonged use. References to those authors who have studied the chemistry and physiological action of the drug will be found recorded by Leech, Paterson, and in a leading article in the *Therapeutic Gazette* for September, 1889. Rabow considers 45 grains of chloralamide to be equivalent to 30 grains of chloral. Chloralamide has been used successfully as an enema by Peiper. [Dr. White's brief notes of twenty cases in which he had given chloralamide are here omitted.]—*British Medical Journal*, Dec. 14, 1889, p. 1326.

10.—RESULTS OF CHLORALAMIDE IN THE INSOMNIA OF PHTHISIS, HEART DISEASE, ENTERIC FEVER, ETC.

By D. R. PATERSON, M.D., M.R.C.P., Cardiff.

With the view of testing the efficacy of chloralamide, I have given it in fourteen cases of insomnia, including simple sleeplessness and that resulting from phthisis, heart disease, enteric fever, &c. These trials were all carried out in hospital patients. Each case was watched by the nurse previous to and after the administration, the duration and the character of the sleep being noted, while the patient's statements were compared with these data and checked. The doses ranged from 15 gr. to 45 gr. dissolved in warm water, the addition of a few drops of rectified spirit increasing very materially the solubility. I may say here that several observations were made on the temperature, pulse, respiration, and urine, with a negative result. Taking first the results in simple insomnia, we have four cases in which the drug was given, two of them being above sixty years of age. In one instance—an old woman of sixty-four, who had not slept for some time, and used to spend the night sitting up in bed—30 gr. produced on consecutive nights, after an interval of from thirty to forty minutes, a tranquil sleep of eight and nine hours respectively. On both occasions there was some giddiness on awakening, while on the second morning, in addition, she felt sick and remained drowsy during the forenoon. The dose being then reduced to 15 gr., sleep did not result on an average earlier than from half an hour to an hour and a half. It lasted, however, nearly eight hours, and was free from any of the former unpleasant after-effects; in fact, after taking half-a-dozen doses, she stated her appetite was much better than it had been for some time. A man sixty-two years of age, convalescent from an attack of jaundice, and complaining much of resting badly at night, received 30 gr. on several

occasions. A sleep of eight hours on an average ensued in from forty to seventy-five minutes after administration. The sleep was unbroken and very sound, and he declared it removed the dull headache from which he had been suffering. Here the drug was used on alternate evenings, and clearly showed its beneficial effect. In a woman aged fifty, 30 gr. doses were followed by from seven to eight hours' sleep, and disappearance of a paroxysmal cough which was very troublesome. After the first dose there was next morning a feeling of sickness, but this, however, was not observed on any subsequent occasion. The fourth case was a man who had been carefully watched, and was absolutely sleepless for some days after his admission to hospital. Doses of 15 gr. to 30 gr. induced from two to four hours' rest on several occasions, and were sufficient to break, as it were, the sleepless habit.

Its influence on the insomnia associated with phthisis I found, on the whole, satisfactory. A night's rest of from six to seven hours frequently resulted from doses varying from 15 gr. to 40 gr. In a girl of eighteen, who had slept but indifferently, 30 gr. induced after thirty-five minutes a nine hours' unbroken sleep, from which she awoke with a clear head and fresh. In two out of the three cases of phthisis in which it was tried there was present, besides moderate insomnia, copious night sweating. The effect in checking this most troublesome and exhausting symptom was marked in both cases. Thus, in a man of forty years of age, who had had profuse night perspiration and indifferent sleep, 30 gr. shortly after his admission gave him the first dry night he had had for some time, besides affording him a fair rest. On the following evening the drug was omitted. He slept very lightly, and was quite wet in the morning. The administration of 40 gr. of chloralamide the evening after gave him an unbroken sleep of nine hours, and he awoke perfectly dry. During the following afternoon he fell asleep for an hour and perspired very much. The efficacy of chloral hydrate in similarly influencing the night sweating of phthisis was pointed out some years ago, I think, by the late Professor Hughes-Bennett. This action is one which has received little or no attention. It is more general than is supposed, and is certainly possessed to a considerable degree by somnifacient agents, and I can fully confirm the statement of Bötttrich, that one of the most recent of our hypnotics (sulphonal) is very often an efficient remedy, in doses of from 7 gr. to 10 gr., in checking profuse sweating, whether in phthisis or pyæmia. According to Hagen and Hüfler, chloralamide has in some cases no action on the insomnia of phthisis, while in others it produces considerable general malaise.

The results obtained in two cases of heart disease were encouraging, and would compare favourably with those of any other

hypnotic. Doses of thirty grains in a man suffering from aneurysm of the aorta gave fair rest, easing the pain and relieving the cough. There were no disagreeable accompanying effects, the patient bearing the drug well. In a case of emphysema and dilated right heart with orthopnoea 30 gr. had little or no influence; 45 gr. induced slight wandering and a feeling of intoxication, which did not, however, last long. Two nights after 45 gr. were again given, and this time sleep was much more sound, and none of the unpleasant symptoms of the previous evening occurred. Later on 60 gr. were exhibited, producing within twenty minutes a sleep of six hours. Beyond a somnolent tendency during the whole of the day following, no untoward effect was observed. The restlessness and delirium of enteric fever were treated by this drug in two cases. In a strongly built man, who had been ill for some time, quantities of 30 gr. and 45 gr. produced feelings of sickness and dryness of the mouth on awakening. The amount of sleep obtained, however, was very satisfactory. In a case in an early stage smaller amounts (15 gr. to 30 gr.) materially quieted the delirium and procured a tranquil night. In neither of these two cases was there any influence on the pulse. In a case of Bright's disease where the sleep was seriously disturbed by almost constant headache, for which several remedies had been tried, 45 gr. led, after the space of thirty minutes, to a sleep of eight hours and a half—"the best night's rest he had for many a day." The effects were here tested on alternate evenings. After the third dose (30 gr.) giddiness came on, and the patient, getting out of bed, staggered about the ward as if he were drunk. All next day he felt so heavy and "queer" that he declined to take any more of the substance. Insomnia and restlessness resulting from pain were little, if at all, influenced by chloralamide. In two cases—one suffering from disease of the ankle with starting of the foot at night, and the other from dysentery with cramp-like pain in the abdomen,—doses of 45 gr. caused, indeed, sleep, but which an attack of pain readily broke.

From these few observations it would appear that the new hypnotic is not altogether free from some of the disadvantages attending those already in daily use. Doses of 30 gr. and 45 gr. have been followed by giddiness, feeling of sickness, dryness of the mouth, and even slight delirium—symptoms which, though not alarming, are certainly disagreeable, but which seem to be inseparable from the action of almost all our sleep-producing agents. A comparison of the action of chloral with that of the amide shows that the latter is not so rapid, sleep coming on half an hour to an hour after its administration; whereas after chloral it often results in fifteen minutes. This slight disadvantage, however, is more than compensated for by the almost entire absence of action which chloralamide has on the circulation. This makes the drug an

invaluable agent where we have to treat sleeplessness resulting from, or co-existent with, cardiac mischief or other diseases where the circulation is in any way affected. Chloralamide has no action on the digestive organs, and the appetite remains unimpaired. That this drug will be a valuable addition to our therapeutical armamentarium is undoubted. More extensive observation is, however, required to fix its position more definitely. So far as can be judged from the published reports, we are justified in considering that as a hypnotic it has proved itself efficient, but whether equal to chloral remains as yet doubtful; while its freedom from injurious action and the safety with which it can be administered give it a claim which merits our highest consideration.—*Lancet*, Oct. 26, 1889, p. 849.

11.—ON RECENT HYPNOTICS AND ANALGESICS.

By DANIEL J. LEECH, M.D., Professor of Materia Medica, Victoria University; Physician to the Manchester Royal Infirmary.

[In an Address on Recent Hypnotics and Analgesics, Dr. Leech says: Of the newer hypnotics—urethane, methylal, amylene hydrate, sulphonal, and paraldehyde—which require a more detailed consideration, I here propose to compare their action with that of the older hypnotics (including chloral), to point out the advantages and disadvantages which seem to pertain to their administration, and to indicate the special sphere in which each is useful.]

Analgesic Influence.—First of all it may be noted that, like chloral, they possess little, if any, analgesic influence; all may at times relieve pain by causing sleep, and rarely they may seem to remove pain, but none of them possess that wonderful power which opium has of preventing the conduction or perception of painful receptions, and, therefore, they cannot rival this most ancient of hypnotics as a soporific where pain prevents sleep.

Hypnotic Potency.—It is difficult to decide the relative hypnotic power of drugs, for individual idiosyncrasy causes difference in the effect obtained, and the nature of the ailment for which the hypnotic is given affects the result of its administration. Dose, too, is an important element in the comparison; but, by comparing the results obtained by such amounts of each drug as will produce sleep, without causing troublesome after-effects, some idea of the relative power of the various members of the hypnotic group may be obtained. All fail occasionally to produce the desired effect. From my own observations and from the writings of others, the order of potency seems as follows: 1, sulphonal; 2, amylene hydrate; 3, paraldehyde; 4, urethane; 5, methylal; none of these drugs equal chloral hydrate in the certainty of their effects. Gürtler asserts, indeed, that amylene hydrate is as potent as the older drug: and the same claim has been made by Oesterreicher

for sulphonal, but, it seems to me, without sufficient proof. It is true that both of the newer hypnotics at times succeed where average doses of chloral hydrate have failed; but comparing the effect of twenty grains of chloral hydrate with twenty of sulphonal or thirty minims of amylene hydrate, there can be little doubt that the chlorinated compound exerts its influence with greater certainty than either of the other two, whilst, if the doses are increased, the greater potency of the chloral hydrate is more apparent. The comparative influence of sulphonal and amylene hydrate is less easy to decide, but my own experience leads me to give the palm to sulphonal; certainly, on raising the dosage of amylene hydrate and sulphonal to double the average of amount given, I have seen the former fail most frequently, and it seems probable that there is a greater liability to danger in increasing the dose of the liquid than of the solid hypnotic; there is more difficulty, too, in the administration of large doses of the former. Methylal has, in my hands, failed more frequently than any of the others. In healthy subjects, indeed, I have not succeeded in producing sleep in the daytime, even by large doses; and urethane also, under the same conditions, very frequently fails, even when given in doses of 120 grains. After paraldehyde, in one or two drachm doses, given to students in the daytime for experimental purposes, I have seen sleep occur whilst pulse tracings were being taken, and in large doses (two to four drachms) it usually causes sleepiness if the surrounding conditions are favourable. If we compare the effect of small doses of the agents we are considering, they seem to rank in potency in the order in which I have already placed them; five to ten grains of chloral will occasionally cause sleep, and sulphonal is often, if not quite, as efficacious in doses of eight to fifteen grains, but small doses of amylene hydrate and paraldehyde hardly ever produce any effect, and from small doses of urethane and methylal I have seen no results.

It is not possible to state with any degree of accuracy the amount of one hypnotic drug which corresponds in influence to given doses of the others; but it seems probable that a dose of sulphonal has, as a rule, about the same soporific action as three-fourths its weight of chloral; and von Mering is of opinion that half a drachm of amylene has the same power as 15 grains of chloral or 45 minims of paraldehyde. Scharschmit holds that 15 to 22 grains of chloral equal in efficacy 40 to 50 minims of amylene hydrate, and that 25 minims of amylene hydrate correspond in activity to rather more than a drachm and a half of paraldehyde.

Rapidity of Action.—The time in which sleep caused by hypnotics sets in will vary much according to the condition of the stomach at the time of their administration, but it depends, too, to some extent on the readiness with which they can be absorbed. Urethane, as might be expected from its solubility and non-irritating pro-

erties, is most rapid in its action; a tendency to sleep is often noticed a few minutes after administration. Paraldehyde, too, not infrequently acts with great rapidity, causing sleep in five to fifteen minutes. Amylene hydrate differs but little from paraldehyde in the rapidity of its effect, but sulphonal more than chloral or any other drug is slow in producing its effects, and two to three hours not infrequently elapse before they are apparent, though at times sleep follows in from one-half to three-quarters of an hour.

Duration of Action.—The duration of action of these drugs depends partly on the potency of their cerebral influence, partly on the rapidity of excretion. On this latter account, the hypnotic effects of urethane most quickly pass away; and if the tendency to sleep, soon after its exhibition, be counteracted, its influence is not again observed. Methyral, too, is very quickly eliminated. The other new hypnotics, when given in sufficient doses, seem to produce, like chloral, a sleep of five to seven hours. Rabbas says that sulphonal acts for a longer time than chloral hydrate, but this view is not generally held, though sometimes the effects of sulphonal are very long lasting. I have known a patient sleep twenty hours after 20 grains, and troublesome nervous effects may last many days after a single dose.

Deferred Action.—It is well known that after a dose of chloral hydrate a patient is occasionally sleepy during the following morning, and the influence of the drug is sometimes noted on the second night after its administration. More rarely, instead of sleeping after taking chloral hydrate at bedtime, the patient remains wakeful all night, but next day is oppressed by sleep; now this prolonged deferred action is more marked and frequent after sulphonal than after chloral or any other hypnotic; indeed it is one of the chief objections to the use of sulphonal, and it cannot always be prevented by giving the drug some hours before bedtime. In the weaker hypnotics this deferred action is but rarely seen. I have known, indeed, apparent instances of it after paraldehyde, but never after urethane or methyral.

Dangerous Effects.—A larger dose than 20 grains of chloral hydrate is capable under some conditions of producing a fatal result, though double and treble this amount is often taken without any sign of evil following. Sulphonal, even in huge doses, has never produced death, though Burnet records cyanosis and a semicomatose condition after 30 grains of sulphonal in a patient suffering from arterio-sclerosis. A patient under Wolff, too, a child, aged 11, suffering from chorea, after taking sulphonal in 4-grain doses four to six times daily for six days, was apathetic and sleepy for many hours. It vomited subsequently, and the pulse became irregular and infrequent. Paraldehyde and urethane seem quite devoid of danger; concerning amylene hydrate and methyral we know too little to speak with certainty, but there is

reason for believing that in very large doses grave evils may be produced by both.

Unpleasant Effects connected with the Nervous System.—Excitement instead of sleep has been known to follow the use of chloral hydrate; amylene hydrate, too, has, though very rarely, produced excitement before sleep. After sulphonal patients sometimes pass a restless and excited night, and occasionally there is bewilderment, as well as restlessness, very rarely delirium.

Paraldehyde is practically free from this inconvenience. Giddiness is not infrequently present after the administration of hypnotics, though when present it is not invariably due to the drug, but sometimes the outcome of expectation, for it has been complained of even when an inert substance thought by the patient to be a hypnotic has been taken; after sulphonal, especially if a large dose be given, this giddiness is sometimes most pronounced, and may last a day or two. It is occasionally accompanied, especially after large doses, by a staggering gait, somewhat like that seen in cerebellar disease, or there may be distinct evidence of an ataxic condition. It may be that the greater popularity of sulphonal makes us better acquainted with its effects: but none of the other hypnotics seem to produce such disturbances of the nervous system as those reported after sulphonal, though amylene hydrate occasionally causes headache, giddiness, and a feeling of drunkenness. All the hypnotics probably have some direct action on the spinal cord; methylene hydrate antagonises the action of strychnine, and paraldehyde and urethane have been employed as depressors of reflex functions. Sulphonal is said by Shick sometimes to depress, sometimes to exalt reflex excitability; but the comparative influence of the newer hypnotics on spinal centres requires further investigation.

Effects on Circulation and Respiration.—It is with regard to the influence on circulation and respiration that the newer hypnotics differ so markedly from the older. Chloral hydrate, as shown by Ringer and Sainsbury, directly affects the heart muscle, slowing and then arresting the beat in diastole, and eventually extinguishing the contractile power of the muscular substance. It also dilates the arterioles, acting on their walls, perhaps also on the vasomotor centre; at times, too, it tends to weaken the respiration, though not so powerfully as opium, the evil effects of which are chiefly seen in its depressing influence on the respiratory functions; even average doses (25 to 30 grains) of chloral hydrate may, under some conditions, give rise to danger and death, owing to their effect on the circulation; whilst small doses of opium may, under other conditions, fatally interfere with respiration.

Now the newer hypnotics are to a large extent devoid of this evil influence, and very rarely, perhaps never, affect the circulation and respiration unless given in doses such as are not used medi-

cinally. Gastric disturbances do not commonly occur after the exhibition of chloral or any of the newer hypnotics. Anorexia and vomiting have been recorded in a few cases after sulphonal, thirst and dryness of the mouth more rarely, and the unpleasant flavour of paraldehyde and amylene hydrate will in a very few cases lead to nausea and even vomiting; but the influence of the newer hypnotics on the digestive organs is but slight.

Skin Eruptions.—The flushing, blotchy rashes, and purpura which chloral hydrate produces, owing to its influence on the vascular system, and perhaps too on the blood, are not usually seen after any of the newer hypnotics, yet an erythematous rash has, on two or three occasions, been observed after sulphonal; this occurrence is very rare and devoid of importance.

Habituation, Cumulative Influence, and Craving.—The effects of habituation on the action of the newer hypnotics has not yet been generally settled. Patients get quickly accustomed to urethane, and it sometimes appears as if after repeated administration of sulphonal, paraldehyde, and amylene hydrate habituation leads to failure of power, but this is by no means proved, indeed, several observers have been unable to find in the case of amylene hydrate, any indications of this; and Clouston has noted no habituation after the continued use of paraldehyde. The balance of evidence shows that habituation does not occur in the case of sulphonal, and the other newer hypnotics are not cumulative. With regard to methylal, there is evidence that patients get accustomed to it quickly, and then require large doses to produce sleep.

The question whether any of the newer hypnotics will be found to give rise to craving for them can only be determined after a longer experience of their use; already, indeed, one instance has been recorded of what may be called the paraldehyde habit. Von Krafft-Ebing says that this drug may lead to symptoms resembling chronic alcoholism, but there can be little doubt the fear of excessive indulgence in the newer hypnotics is far less than in the case of chloral.—*British Medical Journal*, Nov. 2, 1889, p. 969.

12.—ON THE USES OF THE HYPNOTICS URETHANE, SULPHONAL, AMYLENE HYDRATE, AND PARALDEHYDE.

By D. J. LEECH, M.D., F.R.C.P., Physician, Manchester Infirmary.

We employ hypnotics (1) when want of sleep, not associated with pronounced changes in the structure or functions of any of the bodily organs, is the main symptom to be treated; (2) when sleeplessness is connected with, and more or less produced by, such changes; (3) when mental disease is present. In sleepless subjects of the first class opium should, of course, be avoided. Bromide of potassium in moderate doses is usually a satisfactory and harmless remedy; but, this failing, we are often bound to resort to some

other drug. Recourse to chloral hydrate is a possible cause of great evil, for its seductive influence is great, and many have received grave injury from it. Sleeplessness of the kind to which I allude is especially common among the nervous and impressionable, who have not power to resist temptation to the excessive use of hypnotics. It is apt to occur, too, in those whose circulatory condition renders them ill able to withstand the effects of the large doses of chloral they are tempted to take. It seems pretty well proved that the system does not get so habituated to chloral that large doses can be taken without danger; and there seems to be good reason for believing that fatal consequences at times arise from a dose which has several times previously been taken with impunity. Inasmuch as we have now many hypnotics which seem to be free from most of the dangers to which chloral may give rise, we ought never at once to order this drug for simple sleeplessness, but should first order one of the other four which we are considering. In slight cases I find that urethane, in doses of 20 to 30 grains, is often very successful. It is not disagreeable, especially when given in a sweetened, slightly flavoured mixture; and of all the hypnotics it is the least likely to give rise to dizziness, headache, or other discomfort. I know of no recorded instance in which any craving has followed its use, but its hitherto limited employment prevents us being certain that such craving might not occur. The drug should be given immediately before the patient settles down to sleep, for it is quickly absorbed, and the slightest disturbance may prevent its good influence. Though the effect of the urethane is of short duration, the sleep induced is continued naturally. If necessary, the dose may be increased up to 2 drachms; a larger dose than this at times causes dizziness, if it does not produce sleep.

The tastelessness of sulphonal has rendered it a favourite remedy in simple sleeplessness, and comparative small doses, such as 10 to 15 grains, sometimes suffice to cause the desired effect. But such doses more often fail, and it is necessary to raise the dose to 20 or 30 grains. Some recommend doses of 45 to 60 grains, but, from doses above 20 grains, troubles affecting the nervous system are, I think, sufficiently common to render some warning to the patient with regard to their possible occurrence desirable. It is well to give the drug, finely powdered, in soup or warm milk about two hours before bedtime. Occasionally small doses seem to cause more discomfort than larger ones, which are sufficient to cause sound sleep. Women are said to require smaller doses than men.

Paraldehyde is so nauseous that many refuse to take it. In the dose ordinarily given, too (3j), it is somewhat uncertain in its effect, and larger doses are usually objected to, both on account of the taste and the bulk of the draught; but, given in sweet-

ened water 50 minims in each ounce, it is well taken by many patients. Capsules containing 15 minims of the drug I have found useful, but they produce a sense of heat in the stomach when the capsule gives way. The powerful odour imparted to the breath by paraldehyde is an objection to its use. Nevertheless, it has one advantage; no one can take paraldehyde secretly, as the breath always indicates the nature of the drug swallowed.

Amylene hydrate, in doses of \mathfrak{z} iss, may be administered either in a sweetened and flavoured mixture or in capsules. As before stated, it dissolves in one part to eight of water, and experience has shown that it should not be dispensed in more than one dose if mixed with a smaller quantity of water than will dissolve it, for it floats on the surface of the water, and thus might be given in an undue quantity. I need hardly here mention the combination of hypnotics which may be given should single ones fail, but may say that the combination of chloral and urethane I have often found of signal benefit.

When sleeplessness is connected with, or dependent on, changes in the structure of, or function of, any of the various organs, we have to consider the influence of the hypnotic we administer on these conditions. When sleeplessness is due to pain there can be no doubt that no other hypnotic approaches opium in value, and in such cases it has always appeared to me that the possible evils consequent on the administration of opium are minimised. After opium, though at a long interval, comes chloral, which undoubtedly at times relieves pain, and below chloral in efficacy come the other hypnotics, urethane being the weakest of all.

In febrile conditions chloral hydrate is usually well borne, provided the circulation be fairly good; when the circulation is depressed sulphonal may come in useful, due regard being had to its influence on the nervous system; but it often has but little effect. Paraldehyde and amylene hydrate are objectionable because of their taste and comparative uncertainty.

In cardiac affections accompanied by sleeplessness, opium stands out prominently as the best soporific, especially when given in the form of subcutaneous injections. Chloral hydrate is always to be looked upon with suspicion, though doubtless sometimes both safe and beneficial; but, before using it, it seems to me desirable that the more harmless soporifics should be tried, and sulphonal in 20-grain doses, paraldehyde, or amylene hydrate may well be employed. Urethane, too, has been found useful. In sleeplessness connected with heart troubles I prefer paraldehyde, which is well borne, and, in doses large enough, is fairly effective. I have, so far, made but little use of amylene hydrate, but several observers speak highly of its advantages.

In the sleeplessness attending lung affections, opium is, of course, out of the question, and I have so often seen, apparently,

evils arising from chloral hydrate that it is only when other drugs have failed that I employ it. In such cases, however, the newer hypnotics often fail. Rosin thinks sulphonal is a sedative to the pulmonary mucous membrane, but others have not found this effect, and large doses are required to produce sleep in these cases. Paraldehyde is often very unreliable here, and in one case of dyspnoea it has seemed to be injurious. I am inclined to believe in the superior efficacy of amylene hydrate in these cases, but my experience is not sufficient to enable me to be positive on this point. Scharschmit says it may be safely given in diseases of the respiratory and circulatory organs. Time will not allow me to mention in detail other ailments, and I will only add that where delirium is associated with sleeplessness, as in delirium tremens, the milder hypnotics usually fail unless given in very full doses, and urethane has, in my hands, never succeeded even in the largest dose. The older hypnotics, chloral hydrate and bromide of potassium, are more effective remedies. It is in cases of sleeplessness with delirium, as is well known, that hyoscine is often used with such great advantages, especially where great mental disturbance is accompanied by considerable excitement of the circulation.

With regard to the use of hypnotics in mental disease I shall say but little, since I cannot speak from any large personal experience. To the evils which may arise from chloral hydrate in continued doses, Sir James Crichton Browne has borne strong testimony, and opium has long been looked upon as a two-edged sword. Bromide of potassium often fails, unless it be given in quantities sufficient to seriously influence the heart. Urethane is manifestly out of the question, owing to its feeble influence; sulphonal, paraldehyde, and amylene hydrate have all their advocates, and, in moderate doses, seem all worthy of trial; but as amylene hydrate has been known to produce very serious effects when given in excessive doses and sulphonal in large amounts is capable of giving rise to unpleasant nervous phenomena, it appears probable that paraldehyde is the best drug to give when hypnotics have to be administered in full doses and continuously; and Dr. Clouston, in a recent paper, expresses his opinion, founded on long experience of its use, that in mental cases paraldehyde is the purest and least harmful hypnotic when insomnia is marked and intractable. He begins with 40 minims or a drachm, and goes up to 2 drachms in ordinary cases, sometimes to 3 or 4, and once to 6 drachms. Sulphonal, he says, will not compare with it; other observers praise sulphonal, especially if given in small and repeated doses; and Rabbas says it will act where paraldehyde fails; Garnier, too, thinks it better in 30 to 75 grain doses than any other hypnotic; he prefers large single doses to accumulated small doses.—*British Med. Jour.*, Nov. 2, 1889, p. 971.

13.—ON THE ANALGESIC ACTION OF EXALGINE,
(METHYL-ACETANILIDE.)

By THOMAS R. FRASER, M.D., F.R.S., Professor of Materia Medica and Clinical Medicine in the University of Edinburgh.

Methyl-acetanilide or exalgine is one of the four methyl derivatives of acetanilide discovered by Hoffman in 1874—the other three being ortho-, meta-, and para-acettoluid. It occurs in the form of colourless needle-shaped crystals of considerable length, which have a faintly aromatic odour and a slightly pungent taste. It is nearly insoluble in water, but is freely soluble in rectified spirit, and even in dilute alcohol. I find that from 16 to 20 grains may be dissolved in half a drachm of rectified spirit, and that this solution may be diluted with 3 or 4 ounces of water and still remain perfectly clear. As a solution so made, and containing half a grain or 1 grain in a teaspoonful, has but little taste, I have generally used it without the addition of any flavouring agent.

Some of the pharmacological properties of methyl-acetanilide or exalgine were determined by Hepp and Kahn in 1877; but what promises to prove its most valuable action has been made known only within the last few months by Bardet, Gaudineau, Binet, Dujardin-Beaumetz, and Desnos. I shall refer to the results of these observers only so far as to say that methyl-acetanilide or exalgine is not an aromatic body whose antithermic action is likely to prove valuable, as it is producible only by doses which verge on the toxic; but that the analgesic action of exalgine, on the other hand, and in remarkable contrast with the analgesia producible by acetanilide, is manifested by relatively small doses. As the observations I shall bring under your notice have shown, this analgesic action further may be decidedly produced without any other observable effect, unless it be a doubtful tendency to induce sleep, and, therefore, by doses which apparently are absolutely free from danger, and even from inconvenience. For the opportunity of making the observations I am indebted to MM. Brignonnet and Naville, of Paris, who have paid much attention to the manufacture of methyl-acetanilide, and, judging from the beautiful crystalline specimens they have sent me, have succeeded in producing it in an extremely pure form. My observations have as yet been restricted to the influence it produces on pain.

I have administered it in essential neuralgias, and in pain produced by a number of diseases. Having had no previous personal knowledge of its properties, I have generally given it in the small dose of half a grain; but 1, 2, and 4-grain doses were also administered. The largest quantity given in twenty-four hours was 14 grains, and no disagreeable, much less dangerous, effect was produced by this quantity. I shall now give a few details of the observations that have been made, commencing with cases of *neuralgia*.

T.D., aged 30, under treatment for bronchitis, has recently begun to suffer from neuralgia of the right inferior and superior trochlear nerves. The pain is described as "gnawing" and "toothache-like" in character, constant, but with exacerbations of a severe stabbing sensation during coughing. There is also pain in the right eyeball, and tenderness on pressure over the right supra-orbital foramen. January 23rd. At 11.30 a.m., gave half a grain of exalgine. Pain soon became less severe, and in one hour it had disappeared, and it remained completely absent for two hours. January 24th. At 9.30 a.m., while pain was very severe, he received half a grain of exalgine. Within an hour great reduction in pain, but relief not so complete as with the first dose. January 25th. Severe pain from 9.30 a.m. At 11.17 1 grain of exalgine was given. In one hour and ten minutes pain almost completely gone, and relief continued for nine hours. January 26th. Severe pain from 9.20 a.m. At 11.43 1 grain of exalgine was given. In one hour almost no pain, though tenderness on pressure continued. Soon after the latter also disappeared and there was no return of pain until the following morning. January 27th. Severe pain began at 8.30 a.m. At 10.30 1 grain of exalgine was administered. In half an hour pain, and even tenderness on pressure, had completely disappeared, and they remained absent for twenty hours. January 28th. Pain began at 7 a.m., and had become very severe at 8 a.m., when 1 grain of exalgine was given. The pain became much less in one hour, only slight tenderness was present in two hours, and there was neither pain nor tenderness in three hours. On the 29th, 1 grain produced similar results, but within a shorter period. On the 30th the pain commenced at 7 a.m. It was very severe at 8.20, when a grain of exalgine was given. In thirty minutes the pain had almost completely disappeared; in a few minutes afterwards the patient was asleep, and, when he awoke an hour afterwards, there was no pain nor tenderness. Since this date the patient has remained perfectly free from pain.

In a case of sciatica of five months standing, half a grain greatly reduced the pain in fifteen minutes, and it remained very slight for one hour and fifteen minutes; half a grain again greatly reduced the pain in fifteen minutes, and it remained very slight for three hours; 1 grain produced only slight relief; 1 grain almost completely removed the pain in forty minutes, and the relief continued for three hours and a half; 1 grain caused great relief in ten minutes, and almost complete removal of pain in thirty-five minutes; 1 grain caused great relief in fifteen minutes, and the pain was almost absent for one hour and ten minutes; 1 grain caused great relief in twenty minutes, after which the patient slept for six hours, and no paroxysm occurred during the three following days; 1 grain caused great relief in thirty minutes, and pain remained absent for eight hours; 1 grain caused great relief

in thirty minutes, and pain remained absent for fifteen hours; and on January 21st, 1 grain caused great relief in twenty minutes, and no further paroxysm of pain has since occurred, although some uneasy sensations, not amounting to pain, have at times been felt in the right knee and leg.

In a case of herpes cervico-brachialis ten administrations of exalgine were made during five days. Exalgine was usually administered at the beginning of severe exacerbations of pain. Half a grain caused complete relief in ten minutes, which continued for an hour and twenty minutes; half a grain caused complete relief in a few minutes, when the patient fell asleep and slept for three hours; half a grain almost entirely removed the pain in twenty minutes, but the patient slept for only thirty minutes; three-quarters of a grain relieved the pain in a few minutes sufficiently to allow the patient to sleep, and sleep continued for two hours; three-quarters of a grain gave sufficient relief to allow sleep in thirty minutes, and the sleep continued for two hours and a half; half a grain produced only slight relief; half a grain was followed in five minutes by sleep, and the patient awoke one hour afterwards without pain, and no further pain occurred for nine hours; 1 grain caused entire relief in ten minutes, and the pain remained altogether absent for four hours; 1 grain caused entire relief in twenty minutes, and the patient then slept for five hours. On awaking slight pain gradually returned, but it was now felt only in the wrist and back of the hand, and the pain did not again anywhere become sufficiently severe to require further administration of exalgine, although the herpetic eruption still continued.

In another case of neuralgia suffering the patient, C. B., aged 45, was recovering from hemiplegia of the right side. The pain affected the right arm, which had only partially recovered its motor power, and especially the neighbourhood of the shoulder, elbow, and wrist joints, and the whole hand. The pain had been present for a month; it was dull and aching in character, and nearly constantly present, though most severe during the afternoon and evening, and sleep was frequently prevented by it. Eleven administrations of exalgine were made during a period of three weeks. In ten of the administrations the dose was half a grain, and in the eleventh 1 grain. Marked success followed each administration; the pain was removed in from five to twenty-five minutes, and it always remained absent for several hours after each dose, and sometimes for several days. On one occasion, early in the treatment, three doses of half a grain were given at intervals during twelve hours, and, for the first time since the pain began, the patient remained entirely free from pain for twenty-four hours. On another occasion, at about the middle of the period of treatment, no exalgine was given in a day when

pain had occurred, and the patient suffered severely in the afternoon, slept only for a short time at night, and had severe pain also during the following morning and forenoon. Since the last administration (January 17th) there has been no return of pain.

I have been anxious to test the analgesic action in the pain of *locomotor ataxy*, but it has happened that no case of this disease has recently been admitted into my wards. Professor Grainger Stewart has, however, kindly allowed me to make observations on two of his cases. One, A. D., aged 28, has suffered from ataxy for three years. She has frequent pains of the ordinary description in the lower extremities, with girdle sensations there and in the trunk, and she also often suffers from headache. One evening, while these conditions were present, she received 1 grain of exalgine. In twelve minutes the pain in the legs was greatly lessened, and in twenty-five minutes pain had entirely disappeared, the girdle sensations were less marked, and she was free from headache. This relief was maintained for three hours, when the symptoms gradually returned. One hour afterwards, when the symptoms were apparently present in their former severity, another grain of exalgine was administered; in twenty minutes the patient was asleep. She remained asleep for three hours and a half, and, on awaking, she stated that pain was completely absent, although an uneasy heavy sensation, which she nearly constantly experiences, was felt in the back. A third 1-grain dose was given to this patient when she was suffering only from girdle sensations in the back, but only a slight diminution in the sensation appeared to be produced. The second case of ataxy in which exalgine was given was that of a man, W. L., aged 48, who had suffered from this disease for four years. On the occasion of administration, "gnawing" and "aching" pain was stated to be present in the lumbar region, causing much distress. In fifteen minutes after 2 grains of exalgine had been administered, pain had almost completely disappeared, and soon after the patient was asleep. He slept all night, and had no pain when he awoke next morning.

I have been able to make observations on four patients suffering from *toothache*. In one patient, half a grain gave complete relief on two occasions; in the second patient the same result was obtained, also on two occasions, by 1-grain doses, but the relief lasted for only one and two hours; in the third patient, 1 grain completely removed severe pain for twenty minutes, and, on its return, 1 grain followed in twenty-five minutes by 2 grains eased the pain in seven minutes after the second dose, and nearly completely removed it in about eighteen minutes, soon after which time the patient fell asleep, and pain was absent on the following morning; in the fourth patient, with a number of decayed teeth, only slight relief was produced by a $\frac{1}{2}$ -grain dose on two occasions.

I have had only one opportunity of testing exalgine in *cardiac angina*. The patient, J. F., aged 45, suffers from aortic disease. On each of the seven days during which he had been under my care before exalgine was given, severe, sharp, and burning pain had occurred in the pericardium, and pain frequently shoots down the left arm, and is accompanied with a choking sensation in the throat, and with palpitation and much sweating. The attacks usually occur between 6.30 and 7 a.m., but they last only for from a quarter of an hour to half an hour, and during them the patient is obliged to sit up in bed. The first dose of half a grain was given at 6 a.m., in order to anticipate an attack, and on that day, for the first time since he had been under observation, he remained entirely free from an attack. The second dose, also of half a grain, was given a few minutes after an attack had commenced; in three minutes he said he was much better, and in five minutes that the pain and every symptom had disappeared, and he was now able to lie down.

I have given exalgine in two cases of *pleuritic pain*. In one, only an imperfect observation was made with a single 1-grain dose; but, on the whole, the evidence led to the conclusion that no relief was obtained. In the second case, in an adult patient, the pleurisy was recent, acute, limited to the right base behind, and accompanied with friction and considerable pyrexia. The pain was so acute that movement was nearly impossible, the chest expansion was almost limited to the left side, and the cough, excited mainly by bronchitis of the left side, was accompanied with a distressing pain in the region of the pleurisy. While these conditions were present, half a grain of exalgine was given in the evening. The pain was much relieved in twenty minutes, it had almost disappeared in thirty minutes, and it did not again become severe until two hours and a half. Forty-five minutes thereafter a second dose of half a grain was given; in nine minutes pain had nearly gone; a deep inspiration could easily be taken, and the right arm could be moved without inconvenience. One hour and fifteen minutes afterwards, pain again appeared, and it had become severe in one hour and twenty-five minutes, when it was not relieved by a dose of anodyne cough mixture containing a little opium. A third half-grain dose of exalgine was given three hours and fifteen minutes after the second dose; in ten minutes there was scarcely any pain, and the patient slept for five hours, when he awoke with pain of nearly original severity. A fourth half-grain dose was therefore administered; in four minutes there was almost no pain, in five minutes the right arm could be freely moved about, a deep inspiration could be taken without pain, and the cough was less frequent than it had been. This absence of every painful symptom continued for at least an hour and a half, when other treatment was commenced for the pleuritic inflammation.

I have also administered exalgine in several cases where the pain was not so distinctly of a neuralgic character as in the preceding cases. Thus, in a case of *rheumatic synovitis* of one wrist, with intermittent attacks of severe pain occurring each evening, and lasting for from an hour and a half to two hours, on one occasion, half a grain of exalgine relieved the pain in forty minutes and for half an hour; on a second occasion, in half an hour, and for a whole night; on a third occasion, the same dose produced no marked effect until fifty minutes, when the pain suddenly disappeared, and remained absent during a whole night, a sudden cessation having never previously occurred; and on a fourth occasion, half a grain caused complete removal of pain in twenty minutes, which was maintained all night; and, indeed, after this dose no further pain has occurred of sufficient severity to require special treatment. In a case of *blennorrhagic arthritis* with severe continuous pain in both knee-joints, and much swelling there, the pain was much relieved in ten minutes by 1 grain, and for two hours; but on a second occasion, 2 grains produced only slight relief, which, although apparently sufficient to allow the patient to fall asleep in twenty minutes, did not last long, as the sleep was soon interrupted by a return of the pain. In each of these two cases, even when marked relief from pain was obtained, no effect seemed to be produced on the tender condition of the joints. In two cases of *gastric pain*, due to organic disease of the stomach, exalgine was found to give a certain amount of relief.

The observations I have briefly described were made on twenty-one patients, and in sixteen forms of disease. The majority of the patients were inmates of the hospital. Eighty-eight separate administrations of exalgine were made, in 67 of them pain was relieved, and in 21 no distinct benefit was gained. The condition of some of the patients, however, was not one in which the pain that existed was likely to be removed by any substance that did not produce general narcotism. The best results, undoubtedly, were obtained in neuralgia; and if we consider separately the observations in that disease, we find that in 52 administrations, 48 were successful, and only 4 unsuccessful. Allowing for fallacies in estimating therapeutic effects where reliance has almost solely to be placed on the statements of patients, these results are satisfactory, and justify the hope that exalgine may take a useful and important place among the remedies by which pain is relieved. Its analgesic power is not a very powerful one, but it has the enormous advantages of being free from the disturbances and inconveniences that are associated with the action of nearly all other pain-subduing agents and from the dangers inseparable from the use of the more powerful of these agents.—*British Medical Journal*, Feb. 15, 1890, p. 344.

14.—ON THE DIAGNOSIS OF CHRONIC KIDNEY DISEASE.

By C. S. BOND, M.S., M.D., of Richmond, Indiana.

[Dr. Bond appends the following Synopsis to an important discussion of this subject.]

Albumin in the urine probably means disease somewhere in the body. In so-called physiological quantities it probably may be referred to disease removed from the kidneys, and is as transient as the cause. In pathological quantities it signifies either inflammation external to the kidneys or a lesion of these organs. Many patients do not pass albumin with evident kidney lesions. Albumin is inconstant and bears no relation to the extent of the lesion, but when present must be respected as a prominent factor in diagnosis. It generally makes its appearance a long time after other well-marked symptoms have existed, and the disease is grave when it exists in pathological quantities and should not therefore be waited for.

Casts bear an intimate relation to albumin, but appear later. They are strong proof of renal inflammation, as they carry, usually, a part of its epithelium. Differential diagnosis of the varieties of kidney lesions can often be made from this fact, but casts, like albumin, are inconstant, many patients not passing them at all, and they always appear too late to be a factor in early diagnosis.

The specific gravity of the urine is not to be relied upon unless the mean specific gravity of many specimens is taken of known quantities of urine for twenty-four hours. This would mean a small amount of urea passed within this time, since it is the dominant salt eliminated; therefore, why not test for urea at once?

Some outward manifestations of ill health always precede for some time, often years, the passing of albumin and casts. These symptoms are in common with well-marked kidney lesions and are not due to other discoverable physical causes. Cases often, without a change in these symptoms for years, begin passing albumin and casts. It is fair to assume, therefore, that the symptoms referred to are the result of some common cause, which precedes the pronounced kidney lesions. This common cause seems to be something which produces extensive and often remote inflammations of serous membranes, which at the time, or remotely, involves the kidneys. What this cause is, we can at present only conjecture, but many of its pathological effects might be turned to advantage in early diagnosis.

Urea is excreted in abnormally small quantities in cases of well-marked kidney lesions. It is also so excreted in cases having the prominent physical symptoms without albumin and casts. It is interchangeable as a means of diagnosis with the outward signs of the disease, i.e., a knowledge of the condition of ill health being also a knowledge of the amount of urea passed, and *vice versa*.

Urea is excreted in small quantities months and often years before albumin and casts appear, and therefore a knowledge of this excretion is invaluable as a diagnostic sign of early lesions. The diminished quantity of urea eliminated is the result of the constitutional disturbances which precede for long intervals of time the local lesion. Active treatment which would not be beneficial in other diseases having some symptoms in common, identifies this, generally relieves, and frequently apparently cures.—*American Journal of Med. Science*, Jan. 1890, p. 28.

15.—TREATMENT OF TYPHOID FEVER BY PROLONGED IMMERSION IN WATER.

By JAMES BARR, M.D., Physician, Northern Hospital, Liverpool.

[Since he began this method of treating typhoid fever, Dr. Barr has had seventeen cases of this disease under his care. Of these twelve have been treated in the tank, and five were deemed not sufficiently severe to necessitate its employment. Of the twelve cases treated in the tank the narratives of six are given in full, of which we reproduce here only the headings:—

Case 1.—Severe case of typhoid fever; immersed in tank for eleven days. Cure.

Case 2.—Typhoid fever; immersed in water for six days. Cure.

Case 3.—Severe case of typhoid fever, hypostatic congestion of lower lobes of the lungs; sixteen days in tank. Cure.

Case 4.—Severe case of typhoid; cerebro-spinal meningitis; double otitis media; immersed in tank for eleven days. Cure.

Case 5.—Typhoid fever, bronchitis; immersed in tank for six days. Cure.

Case 6.—Dysentery of eight months' duration; typhoid fever; immersed in tank for thirty-one days. Cure.]

The tank consists of a well-made wooden box, 6 ft. long, 2 ft. 10 in. wide, and 12 in. deep. It is lined with lead, which is painted white, and coated with a thick layer of shellac varnish. The shellac makes the tank, on other occasions, a convenient medium for administering electric baths. Each tank is provided with a large discharge pipe, which, in the case of these tanks, communicates with a soil pipe which leads down to the sewer; we can thus empty the tank containing seventy gallons of water in three minutes. During the treatment of the first six, and partly the seventh case, we had only one tank, which was supplied with an ordinary tap, and hence the cleaning each day was a rather slow process, and the patient was out of the water longer than was desirable. Moreover, having only one tank, each patient had to make room for his or her successor, and hence the period of immersion was not so long as I could have wished. We have now got two tanks in the ward, provided with a plentiful supply of hot

and cold water and good discharge pipes, so that the labour of the nurses is considerably lessened. Each tank is provided with a sheet of bed ticking, which would about allow the patient to be submerged, but at the head there is a strip, about a foot wide, which does not sink so deeply, and on which rests an air pillow so as to keep "the head above water," which is a very essential matter in most conditions of human life. The patient is wrapped up in a blanket and completely immersed except the head. It is important to use a blanket for this purpose rather than a sheet, because frequently a small portion of the chest rises above the water, and the blanket being a bad conductor of heat, this portion of the surface does not get chilled, which would happen if a sheet were used. The tank is covered with a half lid, which prevents the weight of the bedclothing resting on the patient, a waterproof sheet, and bedclothing to keep in the heat of the water. The tanks could easily be provided with a small circulating boiler to maintain a uniform temperature, but this is quite unnecessary, as we have found that the removal of a bucketful of tank water, and the addition of the same quantity of hot water every two hours, is sufficient to maintain a fairly uniform temperature, and a variation of one or two degrees is a matter of no moment. A thermometer is kept constantly in the tank. As long as the patient's temperature is over 100° , the temperature of the tank need not rise above 90° to 93° ; but as the body temperature approaches the normal, so should the tank temperature. We have not found it necessary to lower the temperature of the water below 90° nor raise it above 98° . A rise of a few degrees in the tank temperature is sure to send up the heat of the body, though to a less extent, and by regulating the heat of the water there is no fear of any collapse, as the temperature of the body cannot fall below that of the surrounding medium.

I have been anxious that these patients should be disturbed as little as possible, and so have enjoined them to pass their urine and fæces into the tank. The fæces are to a considerable extent retained in the blanket, and this is soaked for some days in a strong solution of perchloride of mercury and hydrochloric acid before being washed. A fresh blanket is used each day. I know this is not a very æsthetic proceeding, and it would be a very simple matter in cases where there was not much diarrhœa to swing the patient while his bowels were being moved. In this case there would require to be a second sheet over the bed ticking, with a hole in it for the buttocks. Where there is much diarrhœa, or where there is incontinence of fæces, as happened in some of these cases, I still think that the less the patient is disturbed the better. Any day on which there was no motion the tank was not cleaned. So far as the patient is concerned, plain water of a given temperature is all that is required; but for the sake of others it is

as well to have it as antiseptic as possible. At first I simply used boric acid, but latterly, for several reasons partly assigned under the sixth case, I have tried to render the water aseptic. This patient developed the disease in hospital, but after a careful and impartial investigation we were convinced that he must have contracted it outside. We used sulphate of iron with a small quantity of sulphuric acid; but the iron oxidised, and the water was rendered so dirty in appearance by the red oxide that we discontinued it. We then tried perchloride of mercury, with chloride of ammonium and hydrochloric acid; but this began to mercurialise the patient, and so had to be discontinued. Those who are fond of inunction in syphilis might find this a very convenient method for introducing the mercury. Dr. Logan made some cultures from the fæces contained in the mercurialised tank water, and he reports, *inter alia*: "But undoubtedly a very large proportion of the germs in the first case were dead. You might look upon the water as sewage water, but sewage water in which there were actually fewer germs than there would be in the same quantity of tap water." We also used boric acid, common salt, and hydrochloric acid; but this mixture irritated the patient's skin. Possibly, if the patient's skin were well protected by a coating of some mineral fat, such as vaseline, a strong antiseptic might be used. This question requires solving; probably it will be found best in the majority of cases to raise the patient above the water while the bowels are moved. In the ward there is a large supply of perchloride lotion (1 in 2000) for nurses and others to wash their hands after handling the patient.

Diet.—These patients have been kept chiefly on a milk diet, not that I have unbounded faith in milk, but it is a simple popular diet for such cases, and I was anxious that we should be able to estimate the value of the tank with as few disturbing influences as possible, either from diet or medicine.

None of these patients had any alcohol during their residence in hospital. Alcohol is not a food in the proper acceptation of the word; it is a sedative, or, to use a commoner though less accurate designation, a stimulant. It causes vaso-motor paresis, which is usually sufficiently accomplished by the fever poison without any assistance; this effect may be necessary during the chilly stage, during collapse, or to counteract the effect of a cold bath, but in a well-managed case without any heroic treatment such influence should not be often necessary. In the case of patients accustomed to alcohol it may not be well to disturb any long-acquired habit; but this disease generally occurs in the young before any such habit has been established. During convalescence it may be, and no doubt often is, useful both for the stomach's sake and to relieve an exhausted heart by lessening peripheral resistance. We frequently hear of patients being "kept alive" for a certain number

of days on brandy, but as these cases generally end in death it would perhaps be more accurate to say that the only nutriment they had during the last few days of life was diluted brandy. The tenure of life held under such conditions is usually dearly bought.

Medicine.—These patients had very little physic. When there is constipation calomel in small doses is perhaps the best purgative. I am a firm believer in the value of intestinal antiseptics, and formerly used salicylic acid suspended in milk; but since Rossenbach introduced naphthaline in this disease I have been in the habit of prescribing it chiefly on account of its very slight solubility. The tank in no way interferes with any other treatment which may be deemed advisable.

Effects of Treatment.—1. *Temperature.*—Increased temperature is a natural phenomenon of fevers, and it is a disputed point how far its mere reduction is beneficial; but the general consensus of opinion attributes to high temperature the power of working mischief irrespective of its origin. So long as the fever is mild there is no necessity for interfering with the temperature, and in any case there is more to be lost than gained by attempting to produce any continuous apyrexia. With the patient in the tank the body heat is to a great extent under command; but, so far as the temperature is concerned, I have made no attempt to do more than moderate the fever. If the reduction of temperature be accomplished by a mere abstraction of heat without any diminution in the production, there cannot be much gain. We want a true antipyretic action where the thermogenesis is diminished, the thermolysis regulated, and the thermotaxic mechanism improved. This is what, I am convinced, the tank accomplishes. There has been no attempt to prevent the usual evening exacerbation, but this is gradually lessened in intensity and duration, the remission becomes greater and longer, and the mean daily temperature is lowered, while when the patient is daily removed from the tank there steadily appears a diminished tendency to disturbance in the thermotaxic mechanism. I hoped to have been able to give some evidence of the tissue changes by an examination of the excretions in the tank, but I soon found that the sources of error were too great to make this laborious process worth attempting.

2. *Circulatory system.*—There is a marked improvement in the vaso-motor tone; the bloodvessels become smaller and firmer; the pulse slower, fuller, and of improved tension—of course you must not mistake the small firm pulse for a weak pulse. The heart maintains its vigour, and the only cases where the sounds have been dull have been those cases where the patients were not put into the tank till a late stage of the fever; but in no case have I had any fear of cardiac paralysis, not even in the dysenteric case with a pulse of 152. Of course there might be a danger in placing a patient in the tank at the end of the third week with an exhausted

heart, as the weak organ might not then be able to cope with the increased peripheral resistance. *Cæteris paribus*, the greater the resistance the less the frequency of the pulse ; but when the resistance almost overtops the reserve cardiac force the frequency again increases. The first case was placed in the tank at the beginning of the third week, his heart was exhausted, and he was much benefited during convalescence by caffeine ; probably the addition of belladonna or alcohol would have been useful. There was no hemorrhage in any of these cases, and I am inclined to think that the tank lessens the liability to that complication, because, without doubt, the improved vaso-motor tone extends to the abdominal vessels, as shown by the lessened diarrhoea, the diminution in the distension of the abdomen, and the rise in the arterial tension.

3. *Respiratory system*.—The respirations lessen in frequency ; the bronchitis and congestion of the lungs improve and soon disappear. In the third case both lower lobes were almost solid from hypostatic congestion, and the heart's action was very feeble. Under ordinary circumstances I would have prescribed caffeine and ammonia for this patient, but I was anxious to first elicit the effect of the tank, with the view of deducing its probable influence in pneumonia ; and I have been so fully satisfied in this respect that the first severe case which comes under my care shall be treated in the tank.

4. *Digestive system*.—The improvement in the digestive tract is, perhaps, more marked than anywhere else. The tongue becomes moist and clean, the salivary secretion increases, the appetite and digestion improve, and the diarrhoea not only lessens, but the character of the motions changes for the better. In the fourth case the diarrhoea alternated with the two periods of immersion ; and in the dysenteric patient the diarrhoea, which had quite ceased towards the end of the period in the tank, again returned, to a certain extent, after his removal. The lessening of the diarrhoea and the prevention of collapse, when the temperature of the tank is maintained, would suggest it as a medium for the treatment of Asiatic cholera. In this case the temperature of the tank would require to be kept at 98° to 100°, and possibly higher in the algide stage.

5. *Nervous system*.—The delirium disappears and the general well-being of the patient greatly improves. We have already referred to the increased vaso-motor tone, and the very heightened neuro-muscular irritability in many of these cases made us at first think that the tank might have too stimulating an effect on the nervous system.

6. *Urinary system*.—The urine was passed into the tank, and very few observations were made in any case. I had hoped to have made a quantitative estimation of the amount of urea in the tank, but this was found to be impracticable. The albumen disappeared in the second and fourth cases.

7. *Weight*.—The first three cases were not weighed before being placed in the tank. The net weight of the fourth case on admission to hospital was 43 lb., and during nine days (seven of which were spent in the tank) she lost 7 lb. During the second period of four days in the tank she gained 1 lb. The net weight of the fifth case fell from $97\frac{1}{2}$ lb. to 92 lb. during six days in the tank. In the sixth case the net weight fell from 115 lb. to 95 lb. during the first twenty-seven days in the tank, and during the remaining four days he gained $3\frac{3}{4}$ lb. In the seventh case the net weight fell from $127\frac{1}{2}$ lb. to $117\frac{1}{2}$ lb. in ten days. The loss of weight in these cases has been very considerable, but the wasting did not appear so extensive as I have previously seen it in severe cases of typhoid fever. I hope in future, with improved dietary, that the wasting will be much less.

8. *Skin*.—The horny layers of the palms of the hands and soles of the feet get quite macerated, but on the skin of the body generally there is very little effect, with the exception of a slight roughness and elevation of the papillæ.

9. *The tissues generally*.—There is marked diminution in the dehydration of the tissues, which takes place in all febrile conditions. This is very apparent in the case of the tongue, which maintains its proper size and keeps moist. I know that a great many eminent authorities state that there is a retention of fluid in the system during the febrile process. There is an intra-vascular retention, especially in the veins, to fill up the paretic vessels; but a retention in the tissues is quite inconsistent with a high temperature. Dropsical conditions follow the fever, and are associated with a feeble circulation. The intra-vascular retention hampers the action of the heart, whereas the improved vascular tone and tension associated with the use of the tank diminishes the bulk of fluid in circulation and increases the action of the heart.

Such are the effects which we may hope to derive from the use of the tank in typhoid fever. It is not a specific for that or any other disease, but it is a specific treatment for the patient; by placing him in an improved environment his system is better able to adapt itself to and overcome the altered conditions attendant on the fever. You may say that the number of cases is too limited to draw conclusions, but if I can only induce you to put the method in practice we will soon accumulate a sufficient number of cases to satisfy the most ardent Baconian. If the advantages of the tank had not been apparent to my senses I would have discontinued it long ago, without waiting for the accumulation of statistics. This is essentially a method of treatment for severe and moderately severe cases; all or nearly all mild cases get well with little or no treatment except that of rest in bed, with a regulated diet.—*Lancet*, March 20, 1890, p, 690.

16.—ON VERTIGO OF BULBAR ORIGIN.

By THOMAS BUZZARD, M.D., F.R.C.P., President of the Harveian Society of London.

Paroxysms of vertigo, occurring in a person of previously fair health and accompanied by deafness or subjective noises, are now constantly being attributed to disease of the labyrinth. In the large majority of these cases the most careful examination discloses no evidence of disease of the outer or middle ear. Where some deafness exists, however, it is found that the tuning-fork is heard very indistinctly or not at all when placed on the vertex, but better when held opposite the external meatus. These characters tend to show that the nerve of hearing is in itself in some way implicated in disease. In these circumstances it is customary to suggest that inflammation, hemorrhage, or effusion has taken place into the labyrinth. Should, however, there be evidence of disease in the middle ear, or obstruction of the Eustachian tube, or irritation or obstruction of the external auditory meatus, it is concluded that the labyrinth is indirectly affected. In either alternative, then, the immediate cause of the vertigo is ascribed to a lesion within the labyrinth.

Now, I have myself no doubt that paroxysmal vertigo, accompanied by deafness and singing in the ears, is sometimes occasioned in this way. Either directly or indirectly, an affection of the membranous or bony labyrinth causes irritation of the auditory nerve-endings and consequent disturbance of equilibrium, deafness, and tinnitus. In all cases, indeed, in which vertigo is accompanied by these symptoms, there can be no reasonable doubt that to the auditory nerve we must in some way or other look for an explanation. My impression, however, has long been that in a large number—perhaps the majority of cases of auditory nerve vertigo,—it is through its centre in the medulla oblongata that the nerve is affected, and not at its periphery. I cannot help thinking that the ear is very frequently indeed accredited unjustly with the production of this kind of vertigo, and that, if we could examine the whole complicated apparatus contained in the temporal bone, we should discover no disease whatever in it. The point, let it be understood, is this: The fact that disease of the labyrinth is apt to give rise to vertigo, accompanied by disordered function of hearing, has been practically construed, as it seems to me, into the idea that all vertigo accompanied by auditory symptoms depends upon a local affection of the labyrinth. I believe this to be an error, and would look to the medulla oblongata, in which the auditory nerve has its origin, for an explanation of the symptoms in a large number of cases of auditory nerve vertigo.

Let me refer to some examples, but I will make the accounts very short. I was hurriedly sent for four years ago to see a medical man, forty-three years old, who had been lying seriously ill for two days. I found him in bed, and two medical friends who had been looking after him were with him. It appeared that two mornings previously he had woke up giddy and gone to sleep again. On waking again and getting up he fell down, looking extremely ill, and nearly fainted. He was got to bed, and there he remained for some weeks. So long as his head was kept perfectly quiet he was easy, but the slightest turn of the head brought on terrible giddiness. There was no deafness or tinnitus. He was away from work for many weeks, but returned well. He had been working again for some time when one day he was seized with faintness lasting a couple of hours, and accompanied by profuse sweating, and a similar attack occurred next day. In these attacks he did not lose consciousness, but felt as if his heart were not acting. Immediately afterwards he passed a large quantity of colourless urine. He described how in this attack, when he lay down and rested his head on the right cheek, he got an electric shock-like feeling, and dizziness, but if he "eased off" his head by supporting it first with a pillow and gradually turned his head round, he could avoid the giddiness. He could turn his head rapidly from side to side and stoop to pick up things, but he could not look up at an object to his left above him, because in that position the head is lowered to the right. The urine was acid, normal in quantity and character; there was no free uric acid. There was no evidence of organic disease of the heart. This patient had a gouty mother, but had not himself suffered from declared gout. The exacting character of his professional work, however, rendered him predisposed to goutiness.

It seems a little curious perhaps that, after dwelling upon vertigo accompanied by deafness or noises in the ear, I should illustrate my remarks by quoting a case in which the hearing remained quite unaffected and there was no tinnitus. But the character of the vertigo in this instance so strongly points to its connection with the semicircular canals that we do not need the other symptoms in order to refer it to disorder in the district of the auditory nerve—in that section of it, at least, which is distributed to the semicircular canals. The faintness may be considered as probably due to inhibition of the heart's action through the vagus nerve. In his first attack the vertigo, which, it will be agreed, was typically characteristic of that referred to the auditory nerve, was the most prominent symptom. In the second attack it was the heart's function, probably through the vagus, which was most powerfully affected. This was accompanied by profuse sweating and large discharge of colourless urine, symptoms which may fairly be referred to irritation of centres situated in the medulla oblongata.

The legitimate inference appears to be that the nucleus of the vagus, the auditory nucleus, as well as the vaso-motor centre in the bulb, were all subject to some irritating influence, which somewhat varied in the point most severely affected on the two occasions.

It has been frequently suggested as an explanation of the coincident troubles in the region of other nerves observed in cases of Ménière's vertigo that these are brought about reflexly through irritation of the ultimate branches of the auditory nerve distributed to the semicircular canals. But in the case just related it seems much more probable, as I have said, that the irritation was applied to the central ends of the nerves in whose district disorder of function was observed.

It is necessary to consider whether it is likely that irritation exerted in this situation would produce such disturbance of function, and for this purpose we may refer to the evidence afforded by other analogous conditions. Several years ago, when the subject of Ménière's vertigo was under discussion at one of the medical societies, I suggested, as a possible explanation of the symptoms, that something like the nerve storm of migraine swept the medulla oblongata, and set up in the auditory nerve a condition which would give rise to neuralgia in a nerve of common sensation. I thought that the vertigo might probably be the expression of such an influence applied to the auditory nerve centre as would occasion pain if applied to the central origin of a nerve of common sensibility. What we call neuralgia, when it does not depend upon inflammation or some coarse irritation of the nerve trunk, is probably due to some change affecting the central origin of the nerve. Sensory nerves are excitable in their entire course from centre to periphery, and pain is produced by irritation of any part, although, according to the law of peripheral perception, it is always referred to the periphery. Supposing the change to affect the sensory nucleus of the trigeminal nerve in the medulla oblongata, we should expect to get pain referred to that portion of the distribution of the nerve which is represented in the particular section of the nucleus exposed to the irritating influence. The influence, then, of whatever nature it be, whether applied to the fibres of the fifth nerve or to its nucleus in the bulb, in either case gives origin to pain in the district of distribution of the nerve. But a like irritating influence applied either to the fibres or the nucleus of the auditory nerve will not of course give rise to pain referred to its distribution—for the auditory nerve is a nerve of special sensation,—but to perturbed action in the organs supplied by the nerve, to tinnitus if the cochlear portion be subjected to the influence, and to giddiness if the part distributed to the semicircular canals be affected, and this whether the trunk of the nerve or its nuclear origin be the part attacked. This at least appears to me to be what must naturally be expected. It may be asked,

granting the probability of irritation either of the trunk or of the nucleus of a nerve giving rise to a similar result, is there any kind of proof that it is so? I think there is.

The most important evidence bearing upon this point is furnished by a case published by Dr. Sharkey, in which the characteristic symptoms of Ménière's disease were due to the presence of an intracranial tumour lying against the pons Varolii, and involving the auditory nerve.

[The narratives of three illustrative cases are here omitted, also Dr. Buzzard's references to his discovery of the dependence of the gastric and laryngeal crises in tabes, upon disease of the medulla, which is introduced as an example of a condition analogous to that with which his address deals.]

Cases of the kind are very numerous. They seem to me, whilst manifestly possessing the characters of Ménière's vertigo, to point, not to any pathological change in the internal ear, but to a transient influence exerted upon the auditory nerve nucleus in the bulb. In such cases you will find that sometimes one nerve centre and sometimes another appears to bear the brunt of the influence. Violent attacks of vertigo with auditory symptoms may occur at irregular intervals, the patient enjoying good health meanwhile, and being quite free from symptoms pointing to disorder of the ear. Perhaps a certain amount of tinnitus or deafness may remain, showing that the irritation of the centre has not entirely subsided. In other cases the patient may have an attack of irregularity of the heart's action, comparable in its suddenness and violence with the vertigo, which it apparently replaces. Or the sensory nucleus of the fifth may be attacked, and the patient suffer from neuralgia as paroxysmal in character, occurring and subsiding as suddenly as the vertigo with which he is seized on some other occasion. It appears to me that we can scarcely fail to see in the paroxysmal character of these various disorders, and their liability to occur in the same individual, evidence of a common causation affecting at different times various nerve centres in the bulb.

In case we are right in thinking that some irritative influence in the bulb is a very frequent determining agent in the production of giddiness and other troubles—vomiting, irregularity of the heart's action, neuralgia, glycosuria, faintness,—is it possible to say what is the nature of this influence? The time has not yet arrived when anything definite can be said on this point. There appears, however, some reason to think that it may be due to the presence in the blood of uric-acid salt or some equivalent. Cases of the kind described are very numerous, and so common is it to find some gouty history in them that I constantly shape my inquiries and treatment in this direction, often, though not by any means always, with success.

It is customary to refer the cardiac symptoms to reflex irritation

from a disordered stomach, but, if you inquire carefully into these cases, I think you will find, as I have, that there is usually no evidence whatever of a local gastric trouble. The tongue is clean, the appetite good, and the process of digestion is attended with no discomfort. In these circumstances it seems much more likely that the influence is exerted directly upon cardiac nerve centres in the bulb. The presence in the blood of some substance prone to show what has been termed "elective affinity" for certain structures would best explain the phenomena, and this substance may possibly be urate of soda, the presence of which in the blood of the gouty has been demonstrated by Garrod.

Many years since I brought forward clinical evidence which appeared to show that uric-acid salts by their presence in lymph spaces might produce symptoms of sciatica and infantile paralysis. I would only now suggest that a like source of irritation of nerve nuclei in the bulb is conceivable in connection with the lymph spaces in the walls of the bloodvessels, but this is necessarily hypothetical.

It has long been my habit to prescribe salicylate of sodium in cases of vertigo associated with auditory nerve symptoms. The employment of this drug suggested itself partly on account of its influence in the elimination of uric acid, as pointed out some years ago by M. Germain Sée, and partly also because it apparently exerts some direct influence upon centres in the medulla oblongata, occasioning, as it does in full doses, reduction of temperature, headache, deafness, tinnitus aurium, giddiness, and sometimes dangerous depression of the heart's action. It is only, however, since I read the admirable papers of Dr. Alexander Haig on Uric Acid that the advantage belonging to the employment of the salicylates has appeared to me to receive adequate explanation.—*Lancet*, Jan. 25, 1890, p. 179.

17.—ON DISSEMINATED SCLEROSIS AND HYSTERIA.

By THOMAS BUZZARD, M.D., F.R.C.P., President of the Neurological Society of London.

[The following is taken from an abstract of an address on the Simulation of Hysteria by Organic Disease of the Nervous System, delivered at the Annual Meeting of the Neurological Society.]

There can be little doubt that of all organic diseases of the nervous system, disseminated sclerosis in its early stages is that which is most commonly mistaken for hysteria. This is evidently due especially to the following circumstances. The disease is particularly common in young females—symptoms showing themselves about the period of puberty. There is very often a history of some moral shock or strain preceding the first symptoms. It is a question well worthy of consideration whether sudden

strong emotion or long-continued mental worry may not be found to be important etiological factors in the disease. In addition there are few cases of disseminated sclerosis in females in which marked hysterical symptoms are not mixed up with those belonging essentially to the disease. Obviously this combination of itself causes a peculiar liability to mistakes of diagnosis. But there are other sources of error in the fact that many of the symptoms of disseminated sclerosis are supposed to suggest of themselves a hysterical origin. A sudden or gradual loss of power in a limb of an apparently healthy young female, a localised numbness, or pins-and-needles sensation, and complaint of loss of sight in one eye are symptoms familiar enough as expressions of functional trouble. They represent equally modes in which organic disease of the kind we are discussing may make its first appearance. These local symptoms may clear off after a short time, just as would be the case if they were of hysterical origin. The girl recovers her sight or the use of her limb, and nothing more is heard of the numbness. A little later perhaps loss of sight in the other eye is complained of; a pins-and-needles sensation is described in some other part; another limb is said to be very weak. The opinion that the symptoms are of hysterical origin may very possibly appear to be absolutely confirmed by this reappearance of trouble in other situations. Or the patient perhaps complains of weakness and stiffness in both legs, which increase so that in six or eight weeks she cannot stand. Then comes a rather rapid improvement, and she recovers her power completely, soon, however, to fail again. After recoveries and relapses of this kind, the characteristics of confirmed disseminated sclerosis show themselves.

As a rule, though this is not without some notable exceptions, the class of hysterical paraplegia is not difficult of diagnosis by those well acquainted with the symptoms and course of organic disease, the surrounding circumstances, and especially the contradictions palpable in the symptoms leaving one usually in but little doubt. I need not dwell upon these before my present audience, but would remark that the attitude and conditions of the lower limbs may vary exceedingly. The limbs are most often in a state of perfect flaccidity, a condition of spasticity being comparatively rare. The feet are frequently "dropped." After long disuse it will not unfrequently happen that there are strong adhesions in the joints. I have already referred to this, and to the pseudo-contracture due partly to this fibrous ankylosis and partly to contracture of the skin—not of the muscles. Hysterical paralysis is most often complete. The loss of power in disseminated sclerosis is very rarely (except in advanced stages) more than moderate. I cannot help thinking that the view still generally held that a shifting of loss of power from one limb to another (such as that which I have described) is really characteristic of hysteria

is quite an error. The hysterical woman who has lost all power in her legs will, it is true, very often later on (whilst still paraplegic) lose the power of one arm, usually the left; but I have not found that she is prone to lose the power in a limb, then recover it, and then lose it in another. It seems to me that the idea of this shifting of powerlessness being strongly suggestive of hysteria has arisen from the mistakes in diagnosing as hysteria cases of disseminated sclerosis, which must have been continually occurring before the latter disease had been differentiated. No doubt the hysterical are prone to changes of disorder; at one time, for example, losing the use of a limb or limbs, with or without profound anæsthesia, at another losing the voice, or closing one eyelid, or contracting a limb, but the shifting about of a state of more or less powerlessness which we see in disseminated sclerosis appears to me to be *sui generis*, and should, I am disposed to think, save us from error. And equally so with the occurrence of numbness or pins-and-needles sensation, sometimes at one part and sometimes at another, which, if my notes do not betray me, points with considerable distinctness to disseminated sclerosis.

There would appear to be a little more difficulty in regard to the impairment of sight in one eye, to which I have referred. The ophthalmoscope perhaps shows no change. But we shall find, I think, that the hysterical patient as a rule, when the loss of sight of one eye is in question, is quite blind on that side, whilst the patient with sclerosis has only more or less obscurity of vision. I cannot call to mind, since I have been better acquainted with disseminated sclerosis, any case of simple hysteria in which first one eye lost some amount of vision for a time, and recovered, and afterwards the other eye behaved in a similar fashion. So that this symptom I should now take to point with considerable force to disseminated sclerosis. When the ophthalmoscope shows atrophy of disc (and it is remarkable in what a large proportion of cases of disseminated sclerosis some atrophy is to be found, in some a stage of hyperæmia preceding it) my experience would teach me that a diagnosis of functional disorder must be discarded. The same must be said of nystagmus, a symptom of peculiar value when combined with others about which there might otherwise be some doubt. It is necessary, of course, to remember the possibility of chronic alcoholism producing a temporary nystagmus, but this chance of error ought not to be difficult to avoid.

We next come to the tremor on intentional movement, upon which I am disposed to place a diagnostic value higher than that possessed by any other symptom of disseminated sclerosis. Looking back many years I can remember observing numerous cases which presented this symptom at a time when I used to feel very great difficulty in the differential diagnosis which we are considering. I cannot call to mind one which the sequel proved was simply

functional. It is true that in the hysterical we not infrequently see a clumsiness of movement of the hand when directed towards an object which is somewhat liable to deceive, but observed carefully it will be found that this is rather of the nature of ataxy than a rhythmical tremor such as is found in sclerosis.

There is also another variety which is worth noting. The patient asked to touch an object with her finger does so without difficulty or hesitation, but when the finger has rested upon the object for two or three seconds the arm becomes affected with somewhat rude tremors. This is in striking contrast with the tremor which affects the arm in disseminated sclerosis, as the patient brings the finger near the object, tending to cease when it is attained. There may be very fine and rapid tremor only when the patient stands upon the feet, ceasing when the sitting posture has been assumed. On the coarser semi-convulsive movements, twitchings, jerkings, and grimacings not rarely met with in hysteria, I do not dwell. They could not for a moment deceive anyone acquainted with the subject. Localised atrophy of muscles with loss of electrical reaction is well known to occur sometimes in the course of disseminated sclerosis, and in a case otherwise open to doubt its presence is undoubtedly of the highest value in determining the organic nature of the disease. But I do not think it is generally known that the localised atrophy may behave like the temporary powerlessness of a limb or limbs, or the shifting numbness. I have seen several cases of disseminated sclerosis in which atrophy of some muscles, with loss of electrical reaction, has cleared off entirely, to be succeeded some time afterwards by a similar lesion in another or the same part.

It is scarcely probable that disseminated sclerosis is a new disease. Little more than half a century has elapsed since it was first figured by Cruveilhier in his Atlas "*d'Anatomie Pathologique*," and twenty-two years ago Charcot expressed his belief—a well-founded belief, I have reason to think—that the disease was not known, that is to say not recognised, in England. It is practically indeed to Charcot that we owe our acquaintance with the disease, from the admirable summary of its clinical and pathological features published by him in his earlier lectures. We all know what a length of time it takes for a disease, however excellently pictured, to fix its features so firmly in the minds of medical men generally as to make the diagnosis of it come readily to those who have not gone out of their way to seek examples of it. And this, which is true of most forms of organic disease, is from the nature of things most marked in reference to disseminated sclerosis. In that disease the infinite irregularity in the situation of the essential pathological lesions creates difficulties of recognition beyond those to be met with in

any other example. This being the case, it is not surprising that the symptoms, characterised as they are by frequent remissions, should, in the absence of other explanation, be set down to the vagaries of hysteria. The almost constant admixture of circumstances pointing to an emotional origin or accompaniment of these symptoms greatly increases the likelihood of this confusion occurring. As I have before remarked, it appears to me reasonable to conclude that many symptoms which have come to be considered characteristic of hysteria will, if examined by the light of improved knowledge and experience, be relegated to disseminated sclerosis. The same principle holds good, as I have already shown, in reference to atrophy of the iliaco-psoas muscles, and to Friedreich's paralysis, not to mention others. But in none so much, for the reasons mentioned, as in disseminated sclerosis. There is a point of great interest to be worked out in regard to the possibility of hysteria—a disease of which the pathology is unknown—merging gradually into disseminated sclerosis. We are quite in the dark on this point, and this is not a fitting occasion on which to do more than advert to it. What is the connection between disseminated sclerosis and hysteria? It seems impossible to doubt, in view of the marked and almost constant occurrence of hysterical symptoms in the earlier stages of the disease, and the preponderance of cases affecting the female sex, that there is a connection of some kind, but in what that association consists I for one cannot pretend to say. No more interesting and important subject than this could engage the attention and study of our Society. The result, if one may venture to hazard an opinion founded on the experience of that which happens in regard to other diseases, would almost certainly be to refer to an organic origin many symptoms which we now term hysterical. The figure of Hysteria shrinks in proportion as the various forms of organic disease acquire greater solidity and sharper definition.—*Lancet*, Feb. 8, 1890, p. 283.

18.—CASE OF TETANY, WITH REMARKS ON THE SYMPTOMS, TYPES, AND NATURE OF THE DISEASE.

By JAMES STEWART, M.D., Professor of Pharmacology and Therapeutics, McGill University, Montreal, Canada.

[Dr. Stewart's paper opens with the narrative of a case of this comparatively rare disease. The patient, a male aged 39, was tall, emaciated, and anæmic. For eight years he had been troubled, with "spasms of the face, arms, and legs."]

Usually the first subjective symptom of their appearance is double vision. Then the thumbs become strongly adducted and opposed, while the fingers are adducted and semiflexed. These contractions gradually increase in severity day by day up to about the tenth

day, when they somewhat suddenly begin to decline, and the parts become normal twenty-four hours after. When the attacks are what he calls severe, the adductors of the upper arm become involved, bringing the arms crossed in front of the chest, with the forearms semiflexed. For some hours before and during the whole period of tetany he has a disagreeable feeling of numbness in his fingers. The dorsum of the hands swell and they are extremely painful. The pain is especially severe when an attempt is made to straighten the contracted muscles. The muscles of the face are also frequently the seat of contractions, the upper lip being usually drawn to the left and upward, and the lower to the right and downward. The facial muscles are also the seat, during the period of tetany, of fibrillary twitchings. The muscular contractions only occasionally affect the muscles of the lower extremities. When affected, the feet and toes are in a state of plantar flexion, the feet being turned inward and the thighs adducted.

The galvanic irritability of the nerves is found to be greatly exaggerated during the period of tetany. During the period of tetany, the knee-jerk is greatly exaggerated, but after it has passed it is always difficult, and at times impossible, to induce contraction of either quadriceps, when the patellar tendons are percussed. The same holds true of the biceps and triceps reflexes. There is nothing definite to be made out in regard to any of the superficial reflexes. Vasomotor phenomena are frequently noticed. Mention has already been made of the swelling of the back of the hands. Herpetic eruptions on the fingers are occasionally seen also. The tongue is constantly found in a raw-looking state.

During the intervals of freedom from the attacks, he suffers from diarrhoea, which moderates when the tetany makes its appearance. The stools are copious, semi-fluid, frothy, and look like pea-soup. The abdomen is usually distended. During the attacks, the urine has a high specific gravity from an excess of urea. It contains also a great excess of indican. It is free, however, from both albumin and sugar. Jaundice frequently is present; there is no other evidence, however, of disease of the liver. The spleen is normal in size. An examination of the blood reveals nothing abnormal. No evidence of any thoracic disease. About one year after this patient came under observation, symptoms closely resembling those of myxœdema were noticed, at the same time that all trace of the thyroid gland disappeared.

Steinheim, in 1830, was the first to give a true clinical description of tetany. Corvisart, in 1852, was the first to propose the name by which it is now universally known. It is, however, mainly to the observations of Trousseau, Erb, N. Weiss, and others that we have been made acquainted with many of the more important features of this remarkable disease. There are three distinct forms of this disease—forms which differ, in the causes

that give them origin, in their course, and in their prognosis, but little in the clinical pictures which they present. By far the most common variety of this disease is what is known as rheumatic or epidemic tetany. On the continent of Europe, especially in Paris and Vienna, distinct epidemics occur. In Vienna hardly a winter passes without such an occurrence. In the winters of 1883 and 1884 a very severe epidemic occurred in the latter city. The course of the disease, when it occurs as an epidemic, is acute—usually not lasting over two or three weeks—fatal cases being very exceptional. Extensive epidemics occurred in Paris in the years 1855 and 1876. In England and America no epidemics of this disease have been described. A second variety of tetany, which is more chronic, is due to either chronic diarrhoea, prolonged lactation, or other debilitating influences. Except in being more chronic, this form differs but little from the epidemic variety. Recovery nearly always occurs. A third form of tetany follows the removal of enlarged thyroid glands. A very considerable number of cases of tetany following this operation are now on record. Up to May, 1883, Billroth performed 78 operations for the removal of enlarged thyroids, and in 13 tetany followed in the course of a few days; 6 of these 13 cases proved fatal. Two of the fatal cases ran a course of upward of one year, while the remaining four terminated within two weeks. There is a very marked difference between the course of tetany following extirpation of the thyroid and that due to debilitating and epidemic influences. The former is a much severer type, being frequently fatal, while the latter is seldom or never fatal. A fourth variety of tetany is also distinguished by its fatal tendency. I refer to that which occurs in cases of dilatation of the stomach. Kussmaul, Gerhardt, Dujardin-Beaumetz, Müller, and others have reported such cases. Müller has collected eight cases of tetany occurring during the course of dilatation of the stomach, with a mortality of sixty-six per cent. Judging from these statistics, tetany due to this cause is even more fatal than that arising from removal of the thyroid gland. I have purposely excluded the consideration of what is commonly called infantile tetany, as it appears to me that true tetany is an exceptionally rare disease in infancy. If we are to include, as many observers do, all cases of carpo-pedal contractions under the name of tetany, the disease is much more frequent among children than adults. Clinically there is a marked difference, however, between the carpo-pedal contractions so frequently seen in conjunction with laryngismus, and tetany.

1. The tetany of adult life is essentially an intermittent disease, while in the so-called tetany of infant life the contractions are permanent until recovery takes place. They may be more intense at one time than another, but they never completely disappear.

2. The carpo-pedal contractions of infancy appear in a very considerable number of cases to be due to cerebral causes, as eclampsia is a very frequent complication. There is no doubt that true cases of tetany do occur in childhood; what I wish to lay stress on is, that they are very rare, and that it is an error to say that every case in which we have carpo-pedal contractions is a case of tetany.

Before discussing the probable nature of the disease, it will be in place to glance at the present expressed opinions as to the cause of the experimental tetany of animals after removal of the thyroid glands. With but very few exceptions, every recent experimenter in this field has arrived at the conclusion that the tetany is directly brought about by the removal of the gland itself, and that it has nothing whatever to do with injury of the nerves in the neighbourhood. The very recent experiments of Fuhr, Weil, and Schultze establish this, I think, beyond doubt. An interesting experiment performed by Fuhr shows that simple irritation itself does not bring about any of the symptoms of tetany. He injected a hypodermatic syringe of a 10 per cent. solution of nitrate of silver between the gland and its capsule; severe and extensive inflammation of the gland and neighbouring structures followed, but at no time were there present any fibrillary tremors, muscular contractions, or other symptoms indicative of tetany.

It is a well-established fact that the removal of one gland does not bring about tetany, but if, after the wound is completely healed, the remaining gland is removed, the symptoms of tetany quickly develop, and we then have the usual lethal course as seen when the two glands are removed at the same time. Weil has also shown that if a portion of each gland is removed the result is negative, while the usual symptoms quickly make their appearance when the glands are completely removed. I think there can be no other conclusion after the consideration of the above facts, than that the cause of tetany in animals is due directly to the removal of the thyroid glands. And no other conclusion is tenable in regard to the tetany which follows extirpation of the thyroid in man.

To explain how causes, seemingly so diverse in their operation, as rheumatic influences, diarrhoea, pregnancy, lactation, and removal of the thyroid glands, can induce similar symptoms is very difficult. The active cause in the case reported is, no doubt, in some way due to the diarrhoea; but is the disease induced through impoverishment of the nerve centres, or through the peripheral irritation, or from the absorption of putrid products? It appears reasonable to conclude that in all cases of tetany we have to do essentially with an unstable condition of the nervous system, a condition which readily reacts to slight peripheral influences. In the great majority of cases the disease is connected with some directly debilitating cause.—*Amer. Jour. Med. Sciences*, Dec., p. 549.

19.—ON THE SEQUENCES OF CEREBRAL APOPLEXY.

By H. CHARLTON BASTIAN, M.D., F.R.S.

[The following excerpt is taken from the abstract of a post-graduate lecture upon Some Points in the Prognosis and Treatment in Cases of Hemiplegia.]

Patients who have had an apoplectic seizure might have convulsive attacks with the onset of the hemiplegia, usually unilateral, implicating the paralysed side of the body, and recurring from time to time. Where the parietal cortex of the brain was damaged, the attacks assumed the form known as "Jacksonian epilepsy," in which unilateral convulsive attacks occurred, affecting either the whole of the side, or only a portion of it—the partial forms sometimes recurring in the shape of mere spasms, without distinct loss of consciousness. In other cases the convulsions might be two-sided, and cease after some months of proper treatment by bromides; while in others they remained for much longer periods, and treatment with bromides only rendered them less frequent. Altered mental states revealed themselves not unfrequently, after the apoplectic condition, in the form of hallucinations or delusions; and sometimes blindness occurred on the same side as the hemiplegia. In these cases the damage seemed to be in the track of the posterior cerebral artery which supplied the corpora quadrigemina of one side; he had known such blindness occurring where that vessel was cut off from supplying those portions of the brain. These cases varied as regards their prognosis. In some the disturbed mental condition existed only over a comparatively limited period and then cleared off; in others it remained more or less permanent, requiring the removal of the patient to an asylum. Cases, however, like this were distinctly rare. But in many instances an emotional weakness, crying or laughing with undue ease, might be expected to exist for a certain time after apoplectic attacks. In very many cases, however, the patient got out of the apoplectic condition, and was simply left with paralysis of the limbs on one side of the body, very often absolute. In regard to these cases, the question whether the patient would recover or remain paralysed was not to be answered too quickly; they should wait to see how the patient went on during the first few weeks before expressing any positive opinion about it. From a prognostic point of view, it might be said that the more rapidly the patient began to show some power over the movements of either limb the greater the probability was that after a time the paralysis would wholly or in part disappear and leave the patient with some use, at all events, of that limb. It did not follow, however, that both limbs would recover equally, and in a great many cases the leg recovered more completely than the arm; but sometimes the reverse of this

happened. It might be said that if the paralysis remained absolute for some considerable time—say, a fortnight or three weeks—the prognosis ought to be very guarded indeed as to the patient ever thoroughly recovering from the attack. If, however, he began to recover in the course of five or six days, and the recovery was progressive, he would after a time very likely recover altogether. In these cases a certain amount of rigidity and some exaggerated reflexes might exist which should not lead them to take too gloomy a view of the cases. Such rigidity with exaggerated reflexes might exist in the early stages, and yet there might be no absolute destruction of the pyramidal tract and no secondary degeneration of the spinal cord, because at first the hemorrhage might occur into the brain near the internal capsule, and that extravasated blood by pressing upon it would for a time annul its functions, thus causing the paralysis, the rigidity, and exaggerated reflexes; but after the blood was partially absorbed and the pressure taken off from the pyramidal tract the rigidity and reflexes might abate, and such a patient might ultimately recover quite as well as one who had shown no such signs.

Taking the flaccid cases first: they must allow them to go on for a few weeks without attempting to do much for the limbs themselves; and after that time, if any slight motor power had returned, it should be favoured by gentle faradisation of the paralysed limb, so as to restore the proper nutritive condition to the muscles, and thus enable them to respond more quickly to any voluntary impulses that reached them. The patient's recovery in this stage might be expedited by the administration of such tonics as liquor strychniæ in three or four minim doses with liquor arsenicalis and the citrate of iron and ammonia; and, having seen that the patient gets proper and regular sleep, that he takes his food well, and where it is possible that he is got often into the open air in chair or carriage, one must then trust principally to time.

Cases where rigidity developed and increased after a time—say, in one arm—were of bad prognostic significance, especially if it set in slowly and affected different segments of the arm; it might then be expected to be more or less permanent, and to increase rather than to diminish. He knew of nothing that was of much service in mitigating this condition. Electricity was not recommended because the rigidity showed that the muscles were in free relation with the spinal cord and their nutrition in these cases did not soon become impaired; electricity did little good in bringing about any diminution of the spasm. Years ago one was led to expect results of that kind from faradisation of the extensors and the application of the constant current to the flexors which were in a state of spasm. He was not satisfied, however, that such treatment produced any very definite results; but there was

no harm in trying it, and also of promoting the circulation of the limb by friction and shampooing. Certain rare cases of hemiplegia were associated with rapid atrophy of the muscles, though, as a general rule, atrophy did not occur except slowly and from mere disuse; such cases were greatly benefited by the application of electricity. If the muscles responded to the faradaic current, it should be used; if anything like a reaction of degeneration existed, recourse should be had to the constant current.—*Lancet*, March 8, 1890, p. 530.

20.—CASES TREATED BY SUSPENSION AT THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

By J. S. RISIEN RUSSELL, M.B., and JAMES TAYLOR, M.A., M.B.

By permission of the physicians who have had the various patients under their care, we are able to publish a Second Series of Cases treated by Suspension at the National Hospital for the Paralysed and Epileptic, Queen Square. The treatment has been carried out in the majority of the cases exactly as described in our last paper, suspension being done every other day with the feet well off the ground; the duration at the commencement of treatment was half a minute, gradually increased until a maximum of four minutes was reached, and the weight of the body during suspension was thrown more and more on the neck, as the patient learnt to dispense with the axillary supports. As it has been asserted, however, by some who have written on suspension that better results are obtained with shorter but more frequent *séances*, in a number of cases—viz., twelve to nineteen inclusive—the treatment was carried out daily with a maximum duration of three minutes. As the table shows, the results were not notably different from those obtained with suspension on alternate days with a maximum duration of four minutes. In all cases the patients were directed to rest immediately after suspension. In the case of out-patients this could only consist of a few minutes' rest before going home. In the case of patients resident in hospital, however, each one had to lie down for at least half an hour after suspension. The same course was pursued in the cases published in our previous paper. As to other treatment received by patients who were undergoing suspension, this was in most cases of the nature of a *placebo*. A few who got attacks of pain had an occasional dose of antipyrin or antifebrin, while one or two who slept badly had from twenty to thirty grains of bromide of potassium or sulphonal at bedtime. There is no accident to record in connection with the treatment, not even the occasional faintness which occurred in some of the former cases. One or two complained of pain in the jaws, one or two of pain at the bottom of the back, and a similar number of pain at the back of

the neck. One of those who complained of the last symptom had along with it one evening more than usual discomfort and a rigor; but as he was suffering from cystitis and returned to his usual condition next day, the rigor is most probably to be ascribed to the bladder trouble. In only one of the cases of tabes can we say there was real improvement. This patient on admission could only get about by catching hold of something; but after a dozen suspensions he was able to walk, with very great unsteadiness it is true, alone, and even without a stick. Towards the end of his period of treatment, however, he unfortunately became worse again, and was very shaky, unable to walk more than a step or two without support. He was in this condition when he left the hospital a fortnight after suspension was stopped. In the other cases of tabes no definite improvement can be recorded. Most of them confessed to "feeling better," but in what this actually consisted it is difficult to say. A few said they thought they could walk a little better, but in none of them was there any objective sign of improvement in this respect to several different observers. In none of the cases where optic atrophy was present was there any improvement in vision, and in the organic signs generally no change can be recorded.

A patient with well-marked ataxic gait, pain at the bottom of the back, pains in the legs, loss of knee-jerk, and normal pupils, had nine suspensions, after which he had an attack of great pain in the back, where the former pain was, and on returning (he was an out-patient) a week later his walking was manifestly worse. He had another suspension, and then he got an attack of erysipelas of the face, which completely interrupted the treatment, even if it would have been considered justifiable to persevere with it. Another patient had a severe gastric crisis lasting over a fortnight, which necessitated the discontinuance of the treatment during that period. Of the other cases—one of disseminated sclerosis, one of ataxic paraplegia, with optic atrophy, and one of paralysis agitans—the first had suspension daily for three minutes, and so had the last. The second one had it on alternate days also for three minutes. In the first case the treatment was only carried out with great difficulty, so violent was the tremor, and after twenty-one suspensions his condition was unchanged. The patient with ataxic paraplegia considered himself better, but to those who saw him there was little if any improvement apparent, and his signs remained as before treatment. The patient with paralysis agitans certainly had less tremor when seen at hospital—indeed, on the last two occasions on which he was seen "no tremor present" is the note made. He said, however, that he did have it occasionally—he was an out-patient—and his face and gait, and the appearances generally characteristic of the disease remained unchanged. With reference to the last two cases in the list they

are both recorded in our last series, one as having improved with thirty suspensions. The treatment was continued until he had had in all fifty suspensions, and while it cannot be said that he improved after the thirtieth, yet the improvement that had already taken place was maintained. The other patient was taken into hospital after having had twelve suspensions as an out-patient. The treatment was continued until he had had in all twenty-one suspensions without any improvement. He died a few weeks later of acute pneumonia.

[This paper is accompanied by a table of 21 cases of chronic nervous diseases, made up as follows:—15 cases of Tabes, in which there was practically no change: 1 case of Tabes made distinctly worse; 1 improved but relapsed, and 1 was slightly improved; a case of Ataxic Paraplegia, no change; a case of Disseminated Sclerosis, no change; and a case of Paralysis Agitans, improved.]—*Lancet*, Feb. 1, 1890, p. 234.

21.—ON NEURITIS OF CIRCUMFLEX NERVE IN DIABETES.

By JULIUS ALTHAUS, M.D., Senior Physician to the Hospital for Epilepsy and Paralysis, Regent's Park.

While hemiplegia, monoplegia, and paraplegia are not unfrequently met with in patients suffering from diabetes, local paralyses owing to inflammation of peripheral nerves are of much rarer occurrence in that malady. Buzzard, in his recent work on paralysis from peripheral neuritis (London, 1888), is altogether silent on this point; nor is the subject alluded to in the second edition of Ross's "Diseases of the Nervous System" (London, 1883), or in Bastian's able Treatise on Paralyses (London, 1886). Leyden, however, has recently stated that he has seen peripheral neuritis in diabetic patients, and that its clinical signs are very similar to those of alcoholic neuritis. He distinguishes three forms of it—viz.: (1) The hyperæsthetic or neuralgic form, in which the principal symptom is severe pain, generally in the sphere of the fifth or the sciatic nerve, the affection being mostly symmetrical; (2) the motor or paralytic form, in which there is paresis or paralysis of the lower extremities, mostly accompanied with neuritic pain; and (3) the ataxic form, or pseudo-tabes. Leyden's cases, however, appear to have been all of the multiple form (polyneuritis), and, as far as I am aware, no case of peripheral neuritis limited to a single motor nerve, and occurring in a diabetic patient without any other apparent cause than the cachexia, has as yet been recorded. The following case will therefore be of interest.

A merchant, aged fifty-six, consulted me in February, 1887. He complained of loss of power in the right arm, and gave me the following history: He had never had syphilis, but had for the last eight years been subject to diabetes, which did not cause much

thirst or polyuria; he had not lost flesh, had a good appetite, and a regular action of the bowels. He slept well, but was much inconvenienced by a diminution of his walking powers, which made him disinclined for physical exertion. He had been well able to apply himself to business. Fourteen months ago he was suddenly awakened in the night by a severe burning pain in the shoulder, which presently spread to the elbow. He had not been exposed to wet or cold, and had had no injury to the arm. In spite of treatment the pain continued for about three weeks, being always particularly bad during the night, and of a stabbing or boring character. All this time the arm was extremely sensitive to touch and movement, and had to be kept as quiet as possible. When the pain at last subsided, the patient found himself unable to raise the arm, while he had no difficulty in bending the elbow, or in moving the hand and fingers. He underwent treatment by electricity injudiciously applied, and by massage for three months, but derived no benefit from either; and considerable wasting about the shoulder-top had been plainly perceptible for some time. On examining the right arm, I found that it was hanging down seemingly lifeless by the side, and could only be abducted from the body to a very slight extent, in a direction forwards and outwards, but not at all backwards. The patient endeavoured to increase the extent of the abduction by calling into play other groups of muscles, raising the shoulder and stretching the wrist and fingers, but to no purpose. It was therefore evident that we had to do with paralysis of the deltoid muscle, which raises the arm to the horizontal line; and that the slight degree of abduction which could be produced was owing to the action of the supra-spinatus. The patient felt much inconvenience from this disability, being unable to wash and dress himself, to eat soup with his right hand, to light a gas-burner, to put his hand into his trousers pocket, &c. He had trained himself to lift the paralysed arm with the left hand, then to bend the elbow and raise the shoulder in a quick manner, and managed to help himself somewhat in this round-about manner; yet the trouble was only slightly lessened by this manœuvring.

The region of the deltoid appeared flattened from atrophy of its substance; the skin was flabby, and its sensibility diminished. The electric tests applied to the circumflex nerve and muscle showed clearly that there was degeneration. The faradaic excitability was entirely lost, and the voltaic response greatly lessened. Indeed, the middle and posterior portions of the muscle did not answer at all to a current of fifteen milliamperes, while the anterior portion gave a sluggish C.C.C. with eight milliamperes, the A.O.C. being barely perceptible. All the muscles in the neighbourhood of the deltoid were in their normal condition. The general health of the patient was fair. The heart and other great viscera were unaffected. The knee-jerk was sluggish, but could be obtained

without difficulty; the dynamometer showed 75° in the right and 65° in the left hand. The urine had a specific gravity of 1028, and contained 2 per cent. of sugar and a slight excess of urea. The patient was of temperate habits. Under these circumstances the diagnosis could not be doubtful. The case was evidently one of acute neuritis of the circumflex nerve, having commenced with severe stabbing pain, which continued unabated for about three weeks, and having led to some degree of anæsthesia of the skin, and to atrophy of the tissue of the deltoid muscle. In the absence of injury, exposure to wet or cold, alcoholism, &c., the cause of the inflammation was evidently toxic, and had to be sought in the saccharin condition of the blood. I prescribed codeia and a moderately restricted diet, and treated the paralysis with faradisation of the skin by a large wire-brush, and six to eight milliamperes of the constant current, to which occasional hypodermic injections of strychnia were added. After six weeks of this treatment, the patient having attended every other day, the electric tests were much improved, the anterior portion of the deltoid responding well to four milliamperes, the middle to seven, and the posterior to ten, while slight fibrillary twitches appeared under the influence of faradisation. The arm could be much further abducted from the body, and the patient was able to put his hand into his trousers-pocket, and eat soup with the right hand. The treatment was continued for another two months and a half, after which the patient had completely recovered the use of the arm. The electric tests, however, more especially the faradaic, were still more sluggish than on the other side. The quantity of sugar had remained very nearly the same throughout the whole time. Some months afterwards I put the patient on antipyrin, during the use of which the sugar disappeared from the urine; but when this medicine was discontinued the sugar speedily returned.

The case just related shows that important nervous affections may occur in the course of diabetes where this is by no means severe, either regarding the quantity of sugar contained in the urine or the intensity of the constitutional disturbance attending the saccharin condition of the blood. In this particular diabetes resembles diphtheria, syphilis, and other toxic diseases in which the more specific symptoms may be slight, and yet the nervous system may subsequently be very considerably damaged. As for treatment, we have repeatedly noticed that severe diet, followed by the complete disappearance of sugar from the urine, is apt to do harm rather than good in any nervous affections which may have cropped up in the course of diabetes; while with a moderately restricted diet and treatment by measures specially intended for the nervous malady *per se*, the prognosis of the whole class of these affections is tolerably favourable.—*Lancet*, March 1, p. 455.

22.—ON TWO RAPIDLY FATAL CASES OF DIPHTHERITIC PARALYSIS.

By F. FOORD CAIGER, M.D.Lond., Fever Hospital, Hampstead.

The fact that the great majority of cases of diphtheritic paralysis end in complete recovery has an undoubted tendency to make one under-estimate the danger which may underlie even the most trivial instance of the disorder. The following two rapidly fatal cases have served to emphasise this fact in my mind.

C. R——, a gardener, aged twenty-five, was attacked on May 22nd with ordinary pharyngeal diphtheria. There was nothing noteworthy in the attack except that the membrane was somewhat unduly persistent, the tonsils not clearing till the thirteenth day. His temperature reached the normal on the ninth day. There was no albuminuria and but slight glandular implication, nor was the illness followed by undue prostration. After a few days in the country he resumed his employment. On July 1st, having finished his day's work, he again presented himself, saying that he felt very unwell. The man was so obviously ill that he was at once readmitted to the hospital. According to his account he had never felt really strong or well since the illness. About six days previously he began to have difficulty in speaking plainly, and afterwards noticed that there was increasing difficulty in swallowing, the food often getting into the air passages or returning through the nose, with frequent fits of choking. Had felt numbness in the fingers and feet for the last two days, but was able to do his work, though greatly fatigued thereby. When admitted, at 6.30 p.m., it was extremely difficult to understand what he said, phonation being very imperfect and the voice hoarse and nasal. There was great difficulty in swallowing either liquids or solids, frequent shallow hoarse cough, with inability to clear his fauces. The vocal cords were seen to be lying in the cadaveric position, and moved but slightly towards the mid-line. The larynx was anæsthetic. Muscular power in arms weak, and tingling in feet. Patellar reflex *exaggerated*. Temperature 103.6°; respiration 40, shallow and jerky. Pulse 120.—2nd: Passed a restless night. Complete inability to swallow; fed with soft stomach-tube. Voice inaudible. Respiration 48, shallow and noisy. Diaphragm acting very feebly, if at all. Face dusky, sweating. Pulse 120, regular. Patellar reflex *absent*. Analgesia in legs, but can feel cutaneous pressure. During the afternoon the sweating continued; cyanosis became more marked. Pupils dilated. Respiration over 50, very shallow. Died quietly at 5.45 p.m. Twenty-four hours before his death the man was at work.

The second case occurred in a child aged five years. C. D——, admitted on Aug. 28th with faucial diphtheria, complained of sore-throat and vomited the day before. The case was a severe

one, characterised by abundance of exudation on tonsils and pharynx, much glandular swelling, rhinorrhœa, and great prostration. On Sept. 6th he had a severe syncopic attack, but rallied under stimulants. The membrane in this case, too, was very persistent, the throat not becoming free until the sixteenth day. The temperature reached the normal on the eighth day, and afterwards was usually subnormal. There was slight albuminuria from the first, which remained as a nearly constant trace throughout the illness. With the exception of some paralysis and loss of reflex in the palate and a certain amount of glandular swelling, the ensuing convalescence presented nothing unusual. On the 17th it was noted that the voice had quite lost its nasal tone. On the 20th the patellar reflex disappeared; the palate was anæsthetic. No motor paralysis observed. On October 2nd food was noticed to return through the nose. Palate immovable; no reflex. Bilateral ophthalmoplegia externa especially affecting the right internal rectus, which was quite paralysed. Accommodation sluggish; irides react to light. Walk very "groggy"; patellar reflex absent.—14th: Double ptosis, most marked on the left side. Albuminuria slight; child sitting up in bed playing with its toys.—15th: Inability to swallow; voice indistinct; dyspnœa. Ocular paralysis complete. The legs and back appear very weak; cannot support himself in a sitting posture. No resistance to passing the stomach tube. Diaphragm not acting; thoracic respiration feeble (40 to the minute); inability to cough; restless and sweating; pulse 100, regular. Towards evening cyanosis became marked. Temperature 99.8° ; respiration over 50, shallow and noisy. Died at 11 p.m., the pulse being perceptible for some time after respiration had ceased.

It is remarkable that in both instances, although parietic symptoms were present for about a week before death, yet it was only within the last thirty-six hours that the cases took on a serious aspect and proved fatal by respiratory paralysis. The symptoms pointing to an affection of the vital functions occurred during the late stage of convalescence—viz., in the fifth and sixth week,—a time when it is more usual to find a form of paralysis mainly characterised by an affection of the spinal nerves supplying the limbs. In both cases the faucial affection was severe, the membrane being very persistent. This is in accord with my own experience—viz., that it is the severe cases which are most frequently followed by subsequent paralysis, the mild ones usually escaping altogether. I believe that in a good many cases of paralysis which are diagnosed to be of diphtheritic origin the original attack of diphtheria is accepted on insufficient evidence; the statement elicited from the patient or his friends that he has had a sore-throat some weeks previously (in one case I remember it was three months) being taken as sufficiently conclusive evidence that

it was an attack of diphtheria, whereas the case might with equal propriety be referred to the operation of some other cause of which we are ignorant. Cases of peripheral neuritis of alcoholic origin may be the type of a wider series, and they certainly bear a close clinical analogy to diphtheritic paralysis.

I have been repeatedly struck by the fact that those cases of diphtheria which during the acute stage present a large amount of mucoid secretion at the back of the pharynx, accompanied with rhinorrhœa, are of the most grave kind, and rapidly reach a fatal termination. The increased secretion, however, is probably only apparent, the accumulation being due to retention, and is a sign of the oncoming paralysis of deglutition, which quickly becomes associated with laryngeal affection and cardiac or respiratory failure. It is this paralysis of early onset, affecting as it does the vital functions, which is so frequently fatal, and tends, I think, to support the view, adopted by Hilton Fagge on the theory of a "neuritis migrans," that there is direct association between the local process and an affection of the nuclei of origin or of the nerve trunks emanating from the medulla and floor of the fourth ventricle, from some of the peripheral fibres of which the diseased surface derives its innervation.—*Lancet*, Dec. 14.

23.—RELATIONSHIP BETWEEN CHOREA AND RHEUMATISM

By H. WALTER SYERS, M.D., M.R.C.P., Physician to Out-patients,
Great Northern Central Hospital, London.

The wide divergence of opinion concerning the relationship between acute rheumatism and chorea as cause and effect is well known. While, on the one hand, many observers maintain the existence of the closest connection between the two maladies, asserting, indeed, that of all the causes of chorea rheumatism is most efficient; others, on the contrary, hold that this connection has been greatly over-estimated, and that the cases of chorea which can be properly attributed to acute rheumatism as their cause are comparatively few in number. This being the case, it may be of some interest to record the result of an analysis of 146 cases of chorea observed at the Westminster Hospital during seven years (1881-87), in which series the actual relationship of the chorea to acute rheumatism (along with other matters) was accurately noted. The cases are given in detail in the Westminster Hospital Reports for the years mentioned, and from the summary prepared for the last report the following figures are drawn.

I have analysed these 146 cases of chorea with the object of ascertaining the percentage of cases which could be fairly ascribed to acute rheumatism as their cause. All these cases have been taken with great care and the facts most thoroughly sifted. Of the 146 cases only 9 (6.16 per cent.) could by any possibility be

attributed to acute rheumatism as their cause. That is to say, rheumatism immediately preceded the attack, or the latter occurred during convalescence from acute rheumatism; whilst all other possible causes of chorea were entirely absent in only 9 cases. In 11 cases the attack of rheumatism occurred during the course of the chorea; in 15 cases acute rheumatism had occurred at some more or less distant period, the interval varying from six years to one month. Thus, some sort of relationship other than causal existed between the attack of chorea and the acute rheumatism in 26 cases, the total number of cases having any rheumatic antecedent being 35, or 23·97 per cent. A rheumatic inheritance existed in 47 cases, 32·19 per cent. The causes assigned by the friends in 94 cases (64·38 per cent.) was nervous strain (fright, distress, and school overpressure). As regards the condition of the heart, in 20 cases a persistent systolic murmur was audible at the apex, and of these 20 cases 11 had suffered from acute rheumatism previously. A murmur, constant neither in force nor rhythm, was audible over the region of the apex in 64 cases, this murmur entirely disappearing as the patient recovered. The number of cases having a neurotic inheritance was a trifle larger than that owning a rheumatic inheritance, the former being 49, the latter 47. There was an inheritance of phthisis in 14 cases and of gout in 4. As regards age, only 3 cases were under eight; between five and ten, 34 cases; between ten and twenty, 96 cases; between twenty and thirty, 10 cases; between thirty and forty, 1 case; between forty and fifty, 1 case; between fifty and sixty, 1 case. As regards the relationship as cause and effect between acute rheumatism and chorea, the figures given above agree with the results obtained by Dr. Sturges, who gives from 5 to 8 per cent. as the average of cases of chorea arising directly from acute rheumatism. In only twenty cases (13·69 per cent.) was there evidence of damage to the endocardium, yet I find from analysis of cases of acute rheumatism that between the ages of ten and thirty 27·7 is the percentage of cases having cardiac disease due to acute rheumatism. Should the ordinary teaching on the subject be correct, it is surely strange that acute rheumatism at the very age when the heart is most liable to be affected should in the case of chorea cause such affection in barely half the number of cases. It is still commonly stated in the textbooks that rheumatism is one of the most efficient causes of chorea, yet several recent observations tend to results opposed to this view. No doubt the frequent presence of a cardiac murmur has led to the assumption of valvular disease, and of previous acute rheumatism, without care having been taken to ascertain whether the murmur was constant and invariable. As stated above, a fleeting murmur was audible in 64 of the cases analysed; but in every one of these cases it had disappeared at the time of the discharge of the patient, and there was no reason whatever to believe that in any one of

the cases the heart was damaged. Probably, were sufficient pains taken to investigate thoroughly the history of a series of cases of chorea, similar results would be obtained; but so long as vague pains in the limbs are admitted as evidence of rheumatism, and the mere presence of a murmur is considered satisfactory evidence of cardiac disease of rheumatic origin, for just so long will the ordinary views as to the intimate connection between chorea and acute rheumatism be maintained. The number of cases having neurotic inheritance—49, or 33·57 per cent.—is greater than that having any other traceable inheritance. The large number of cases—94, or 64·38 per cent.—in which the disorder originated in some nervous disturbance (overwork at school, distress, shock), very significantly points to nervous stress of some sort as the most efficient cause. With regard to the other points brought out in the analysis (sex and age) comment seems unnecessary, as the results agree with facts already sufficiently well known.

The following results were obtained:—146 cases of chorea: Acute rheumatism, as cause, 6·16 per cent.; rheumatic antecedents, not causal, 23·97 per cent.; nervous disturbance, as cause, 64·38 per cent.; rheumatic inheritance, 32·19 per cent.; neurotic inheritance, 33·56 per cent. Heart: Structural heart disease, 13·69 per cent.; heart affection other than structural, 43·8 per cent.—*Lancet*, Dec. 21, 1889, p. 1271.

24.—ON A CASE OF PERIPHERAL NEURITIS, CAUSED BY INHALATION OF BISULPHIDE OF CARBON.

By A. M. EDGE, M.D., M.R.C.P., Phys., Salford Royal Hospital.

Although it has long been known that workmen exposed to the fumes of bisulphide of carbon are liable to present symptoms resembling those produced by alcohol, it is only comparatively recently that cases have been described in which inhalation of this substance has caused a form of paralysis corresponding to alcoholic paralysis. The case which I am about to narrate is a good example of this form of toxic paralysis.

The patient, a man thirty-two years of age, was admitted into the Salford Royal Hospital on March 3rd, 1888. For the greater part of his life he had worked in a coal mine; he had then been employed for three years in a foundry, and in April, 1887, he began to work in the "curing room" of an indiarubber manufactory, where he was compelled to inhale fumes containing a large proportion of bisulphide of carbon, which is used in the vulcanising process. He had always enjoyed the best of health until the beginning of his present illness; he had been a total abstainer for sixteen years, and had never smoked or had syphilis. Soon after commencing work in the indiarubber factory he began to suffer from headache, giddiness, and drowsiness; the

tongue was dry, and the taste of the bisulphide constantly present. He did not take much notice of this, as all the workmen were accustomed to suffer in the same way when first employed. These symptoms disappeared in the usual manner in the course of a few weeks. In the beginning of January, 1888, the headache returned and was accompanied by delirium and delusions of sight, and he was compelled by frequent attacks of giddiness to take to bed on the 10th. So-called "rheumatic" pains were then felt in the knees and ankles, and the face and hands became yellowish in colour. He was also subject to attacks of unconsciousness coming on suddenly and without cause while he was in bed. About the end of February the legs were noticed to be weak, and the lower halves of the legs felt numb. Sexual desire was abolished. On admission into the hospital the delirium and other cerebral symptoms had disappeared. The patient could neither walk nor stand without support, but on being well supported on each side, he was able with great effort to drag the toe of one foot about three inches in front of the other foot. As he lay in bed there was distinct drop-foot on both sides; he could barely move the toes, and could not perform dorsal flexion of the ankle. He was able to raise the heel from the bed slowly and with difficulty; the legs could be adducted forcibly, but abduction was weak. No wasting could be detected. The knee-jerks and the plantar and cremasteric reflexes could not be obtained, and there was no ankle clonus. Almost complete loss of sensation as regards touch, pain, and temperature existed below the middle of the leg. On squeezing the calf muscles some pain was complained of, not confined to the parts pressed on, but described as shooting upwards and downwards. The functions of the bladder and rectum were performed naturally. The upper extremities were perfectly normal in every respect. The faradaic contractility of the muscles of the legs was somewhat impaired; with the galvanic current the muscular contraction was normal, and contraction occurred with a weaker current on cathodal than on anodal closure. No vaso-motor or trophic disturbance was present. Taste and smell were normal, but the patient complained of weakness of vision, interfering somewhat with reading. His colour vision was unfortunately not tested until March 16th, when it was found perfect, and the range of vision (hand test) was found normal on both sides. (By this time, however, the defect of sight had almost disappeared.) The pupils reacted to light, and the discs were healthy. The only treatment adopted was rubbing and the internal administration of quinine. Improvement began to take place almost immediately. On the 16th it was noted that he could raise the heels from the bed with ease and could produce flexion of the ankles; abduction also was performed more easily. Some return of sensation was noticed in the left foot, where a smart prick was quickly felt,

and the knee-jerks had returned to a slight extent. On the 23rd the anæsthesia had entirely disappeared on the left side. He was able to walk with the help of an arm on each side. On the 29th he could walk unsupported; the knee-jerks were active on both sides, but the right leg and foot were still slightly anæsthetic. He was discharged on April 18th, walking well, although the left leg was slightly the stronger. He continued to show himself occasionally without any change being noted. On June 15th he presented himself after a stay at the seaside. He was then walking perfectly, both legs being quite strong, and no anæsthesia could be detected anywhere. There was, however, no return of the cremasteric or plantar reflex. Sexual appetite had returned.

This patient was not seen again until Sept. 21st. He said that he had returned to the indiarubber factory, and had found employment not in the "curing room," but in a different part of the building, where he was occupied in boiling the rubber. He said he was not at all exposed to the noxious bisulphide vapour, and felt quite well. On examining him, I was somewhat surprised to find a considerable amount of anæsthesia involving the right foot and lower third of the leg. The cremasteric reflexes were still absent, but the knee-jerks were unusually active. On cross-questioning him, I discovered that when the wind was in a certain direction the fumes generated in the "curing room" were blown into the room in which he worked.

There can be no doubt that this case was one of peripheral neuritis, due to the toxic influence of bisulphide of carbon. Fortunately, owing to the fact of the patient being a total abstainer, alcohol was excluded as an etiological factor. Two similar cases have been recently described by Dr. Ross, and three cases had been previously described by Dr. Alexander Bruce, in all of which the disease had been contracted in indiarubber works. A remarkable feature in the instance just narrated is that, notwithstanding the severity of the symptoms, recovery took place with great rapidity, as one was enabled to prognosticate from the electrical reactions of the muscles. A reasonable explanation of this rapidity may be deduced from Dr. Buzzard's theory of the pathology of this form of neuritis. He supposes that toxic multiple neuritis is due to an irritative influence produced by the poison upon the vaso-motor centres in the bulb and cord, causing a diminution in the supply of blood to the peripheral nerves, and leading, if long continued, to a degeneration of nerve fibres. On this hypothesis I think we must suppose that the irritation and consequent diminished supply of blood had lasted only long enough in this instance to produce a condition of lowered nutrition in the nerves without actual degeneration. Another noteworthy point is that the upper extremities were in no wise affected; in both of Dr. Ross's cases the extensors in the forearms were weak, and

numbness and tingling of the hands were complained of; similar symptoms have been noticed in other instances. Sensory disturbances are usually found to a greater or less extent in cases of peripheral neuritis, except in ordinary cases of lead palsy, but the degree of anæsthesia in the lower limbs in my case was somewhat unusual. It may perhaps be inferred from the anæsthesia found in the right leg when the patient was last seen that a previous attack of this form of toxic neuritis may predispose to a second attack on renewed exposure to even a very small dose of the poison.—*Lancet*, Dec. 7, 1889, p. 1167.

25.—A CURE FOR FACIAL NEURALGIA, ODONTALGIA, &c.

By GEORGE LESLIE, M.B., F.R.S.Ed., Falkirk.

On the 16th August, 1889, I found that, by an operation of extreme simplicity, I was able to arrest a very severe attack of supra-orbital neuralgia, and in what seemed to be no more than the period of nerve transmission. The idea at once suggested itself, that if a neuralgia or other pathological condition of one branch of the fifth cranial nerve could be controlled so easily, it was almost certain that similar conditions of other branches of the fifth, and probably of other cranial nerves, might be successfully treated by the same means. I immediately began a research on this point, which has been carried on during the past three months, and of which I now give the results. They appear to be important, to show indeed, that many of the most distressing and acutely painful ailments to which we have been supposed to be heirs—such as neuralgic headache, faceache, toothache, earache, and allied complaints—are, in the great majority of cases, unnecessary, and that a beneficent Nature has provided for them, to the rich and poor alike, an effectual remedy.

For all the cases of this nature which have come under my care a uniform treatment has been followed. It has been the application of powdered chloride of sodium—common table salt—to the nasal mucous membrane. The salt may be used by the patient as snuff, a pinch being taken into the nostril of the affected side, and in many cases I have found this to be effectual in preventing recurrence, but the best results have been got when the salt has been applied by means of an insufflator. In practice I charge a small insufflator, the chamber of which contains about four grains, and ask the patient to draw air up the nostril while I inject the contents. The application produces little pain or discomfort.

It is probable that other chemical substances, especially those allied in constitution to chloride of sodium, may produce similar therapeutic effects, but as I have not had a specially obstinate case in my own practice, I have not yet tried others, and have considered their discovery a matter more of scientific curiosity

than of practical importance. The stimulation by chloride of sodium appears to induce in the nasal branches of the fifth nerve a form of nerve motion, which causes reflex inhibition of the pathological process in the nerves affected, inhibits the abnormal form of nerve energy, of which the expression is pain, and replaces it by the normal form, of which the expression is not pain.

The mode of disappearance of the neuralgia is noteworthy. So unattended is it by any form of shock or other unpleasantness, that though the patient may be suffering from intense pain one minute, and be absolutely free from it the next, it is generally somewhat longer before he can realize his altered condition, and he usually employs a short time in introspection before announcing the favourable result. [Dr. L. relates 20 markedly-successful cases.]

Although a single application usually suffices for the immediate inhibition of neuralgia, especially when it is recent and localized in one branch of the fifth nerve, in other cases, where the disease has been of long standing and of extensive distribution, I have found that insufflation repeated every half minute, for about five minutes, was required. It is as illogical to ascribe failure to this method of treatment because one application may not give immediate relief from any form of cranial neuralgia, as it would be to deny the anæsthetic properties of chloroform, when it was found that one act of inhalation of its vapour did not produce anæsthesia. *Edinburgh Medical Journal, Jan. 1890, p. 614.*

26.—ON THE MECHANICAL TREATMENT OF DROP-WRIST.

By V. P. GIBNEY, M.D., New York.

A little over two years ago, while visiting Mr. Hugh Owen Thomas, of Liverpool, I saw a rather queer device on a case of lead paralysis. It was simply an apparatus to keep the hand hyper-extended to the fullest possible limit. Mr. Thomas showed this with much pride, saying that it was the best treatment he had ever seen for drop-wrist. The explanation was that the extensor muscles were fully rested, while the flexors, which had become contracted by position, were overstretched. The idea seemed a very good one, and in January, 1889, I had an opportunity of putting the hands of a patient up in this position. She was thirty years of age, and was first taken ill in May, 1888. She thought that her illness was due to drinking water after its long standing in pipes. There was no other explanation of her illness so far as we have been able to learn. Her symptoms were cramps in the stomach, followed by diarrhoea and vomiting. This condition of things lasted for about three weeks. A physician who was called to attend her this time gave her some medicine to control the diarrhoea and vomiting. A month later she began to experience a pricking sensation in both hands and feet, followed by numbness,

with loss of power in the hands. She tells me that she was unable to hold a pen in the right hand while writing. During this whole time she had much pain in the stomach, with loss of appetite. All this occurred in the country. She appeared at the New York Dispensary some time in the summer of 1888, and was told there by the physician who saw her case that it would require one year to get well. She continued there in treatment for four weeks, and, becoming discouraged, was admitted to Bellevue Hospital, and for the first time she was told that she had lead paralysis. She remained in the hospital six weeks, taking medicine three times a day, a double dose at night. She had, at the same time, electricity three times a week. At the end of this time her pains began to diminish, her general strength increased, but she does not admit that her wrist-drop was any better. She was transferred to the Randall's Island Homœopathic Hospital a little later. She got a leave of absence one day, and came to see me on the 8th of January, 1889, when I found her with complete palsy of the extensor group of muscles, both wrists, but with considerable power to flex. I did not make any electrical examination, but proceeded at once to put her up in the apparatus which I show this evening. I secured the appliances with a solid plaster-of-Paris bandage, hands and fingers fully hyper-extended. She went back to the Island and was not received very favourably because of her helplessness. However, some one of the attendants fed her, and on the 8th of February, one month later, I removed the dressing for examination, finding the patient able to extend both hands to 180 degrees, but not able to hyper-extend any. I reapplied the bandage, and on the 19th of February it was found that the hand did not drop any except after a few minutes' attempt at extension. After leaving Randall's Island Hospital, and while she was wearing the splint, that is, the latter part of February, she was admitted to the Presbyterian Hospital and remained four weeks, and was discharged because she insisted on keeping her plaster on. This was her own report. At all events, the splints were removed some time in March or April, and I did not see her again until the 22nd of August, when the cure was complete. I saw her again on the 3rd of October, and I do not discover any defect in her hands. She came then to return the springs, and to thank me for the relief she had obtained.

I have for a long time been very fond of this method of treating external paralysis about the foot. I aim always to over-correct the deformity, and retain this position as long as I possibly can. I am at present employing this method in one or two hemiplegics who have drop-wrist and some spasm of the flexors, but am not prepared to report results. The plan commends itself, I think, on account of its simplicity, and the result in this special case, I think, is unquestionable.— *Medical Record*, Nov. 2.

27.—ON THE SURGICAL TREATMENT OF PARALYSIS OF THE INSANE.

By T. CLAYE SHAW, M.D., F.R.C.P., St. Bartholomew's Hospital.

The hopelessness of remedies to stay the progress of general paralysis of the insane has led me to consider the advisability of trying surgical interference at an early stage of the disease, and I beg to submit the following case where trephining was performed with the result that the prominent symptoms disappeared. Whether general paralysis is a disease *sui generis* or not, it is certain that the pathological appearances point to irritative (probably inflammatory) processes in the upper layers of the convolutions in the earlier stages, and to pressure signs from the presence of fluid in the later. To modify these conditions is the object of the operation, but beyond suggesting that by producing an alteration in the existing state of the morbid process at work a new and reparative nutritive process may be set up, I do not at present offer an explanation. This, however, must be borne in mind that early headache of a tensive character is a very frequent symptom, and that trephining seems to be a more certain way of relieving the pressure than depletion by purgatives or medicines given with the view of lowering vascular tension. How nerve-stretching acts in ataxy is not known, though of its efficacy there is now no doubt. Why should not the same process have favourable results when applied to the brain? The only way of stretching the brain is by giving it more space in which to expand, by allowing it to relieve itself from the increased arterial tension which the sphygmograph has shown to be one of the early conditions in general paralysis. It is easy to see how surely trephining must relieve the later symptoms due directly to fluid pressure such as the paralysees, attacks of stupidity, loss of power of swallowing, talking, etc. To propose trephining in the early stage of a disease seems a formidable remedy, but the operation is nowadays attended with little risk, whilst the steady progress towards death if the disease is left to itself makes it imperative to consider the feasibility of any remedial measure however severe.

Occasionally we read of cases of general paralysis recovering in an unexpected manner; but without denying the correctness of the reported instances, it must be said that they are so few in number, and so obscure in the description of the manner in which the cure was effected, that we must put them out of the category of results most likely to happen. Acting, then, on the principle that the relief of tension and the endeavour to set up a changed nutritive process was to be the guiding one for treatment, and that to be of any value it must be done in an early stage, I communicated with Dr. Ferrier, and asked him to see with me the case of a man upon whom I proposed to operate. We agreed that the patient was rapidly approaching a condition of dementia of

the paralytic form, and that the only hope of giving him relief was in the manner I am now indicating. The great difficulty that one has to contend with is in getting the consent of the friends for the operation to be performed, for the signs which have so fatal an import to those conversant with the disease are not especially striking to the uninitiated.

The main features of the case are as follows: W. H., admitted November 14th, 1888, a packer, in an excited, grandiose mental state, affection of speech, exaggerated reflexes, gait very unsteady, and retention of urine. On the certificate of admission, his delusions were described as very "large" in extent, and there was no doubt that when admitted he was in an elevated and happy frame of mind, altogether incompatible with a realisation of his true condition. It was probable that the man was suffering from a bulbar lesion, and that the mischief, which had probably begun there, was extending to the superficial parts of the brain. From time to time, W. H. had convulsive attacks and short periods of loss of sensation, chiefly in the left extremities, and his powers of deglutition and talking became more and more impaired, whilst his mental condition was fast approaching a well established dementia. On July 28th, the patient was trephined on the right side of the skull over the central sulcus, and about two inches outside the longitudinal fissure.

The operation, performed by Mr. Harrison Cripps, assisted by Mr. Bruce Clarke, consisted of making two holes with a trephine, cutting away the intermediate bone so as to make an opening about $1\frac{1}{2}$ inch long by $\frac{3}{4}$ inch wide, cutting away the dura mater, and letting out a considerable quantity of subarachnoid fluid. Strict antiseptic precautions were taken, and the after-course of the operation was very satisfactory, for at no time did the temperature exceed 99.5° ; and by the tenth day healing was complete, and the patient was able to sit out of bed. With the exception of a little tingling in the fingers of the left hand on August 9th and 15th, there have been no cerebral symptoms since the operation. The present state of the patient is a great improvement upon what it was; in fact he is no longer insane, and I propose to discharge him. We did not expect him to show any marked improvement in the bulbar symptoms, although I think that even here his condition is better, and he certainly swallows and speaks more easily and distinctly; but in his mental tone the difference is most marked, for he is no longer optimistic in his ideas, nor has he had any of the convulsive epileptoid attacks to which, before operation, he was very subject. He reads the paper daily, is free from headache, eats and sleeps well, and is able to hold his urine. I pointed out the case to Dr. Clifford Allbutt when visiting here, and he agreed that the man could no longer be considered insane.

I consider, then, that the operation has been justified by success,

inasmuch as the mental signs of exaltation have disappeared, together with the convulsive attacks; and though the prominent bulbar symptoms remain, they have to some extent been benefited, beyond which we expected nothing. My object in reporting this case is that I believe it to be the first that has been done with the distinct object of introducing surgical measures into the early treatment of general paralysis; at any rate, I am not aware of any other reported case, nor have I before heard this mode of treatment suggested. Little can, of course, be postulated from one operation, but the results of this case have been so satisfactory, that I feel encouraged to go on, and I shall hope to be able to report additional successes from time to time. Much of the success attending this case is due to the very careful manner in which Mr. Cripps conducted the operation, and I was very fortunate in obtaining the valuable opinion of Dr. Ferrier as to the advisability of doing an operation which might or might not be creditable to brain surgery.—*British Medical Journal*, Nov. 16, 1889, p. 1090.

[In connection with this subject the reader is referred to an important paper by Dr. Batty Tuke, in the *British Medical Journal*, Jan. 4, 1890, p. 8.—Ed. *Retrospect*.]

DISEASES OF THE ORGANS OF CIRCULATION.

28.—ON THE NON-TUBERCULAR AND NON-CARDIAC HÆMOPTYSIS OF ELDERLY PERSONS.

By SIR ANDREW CLARK, Bart., M.D., Consulting Physician and Lecturer on Clinical Medicine to the London Hospital.

Many years ago, when examining the evidence of the arrestment of phthisis and endeavouring to determine the conditions in which it occurred, I was struck with the large numbers of cases of hæmoptysis occurring in elderly persons who were at the time and remained afterwards free from signs either of pulmonary tuberculosis or of structural disease of the heart. Being in those days completely influenced in my views of hæmoptysis by the teaching of Dr. Walshe, I ascribed every case of pulmonary hemorrhage in which there was no heart disease or aneurysm, or malignant growth, to tubercular disease of the lung. Perhaps I carried to an extreme issue the opinions of this distinguished master; at any rate, I must confess that the consequences were not satisfactory for the patients or for me. At last, however, there occurred in the wards of the London Hospital a case of fatal hæmoptysis which not only made plain the error of my views, but revealed a cause, hitherto, I believe, unnoticed, of pulmonary hemorrhage. The patient, a man between fifty and sixty years of age, was admitted for an attack of subacute bronchitis. He had

been for many years the subject of a moderate progressive osteoarthritis, and during the last four or five winters had suffered from severe bronchial catarrh. The attack from which the patient suffered on admission was of the ordinary character; there were signs of some congestion at the posterior bases, and of emphysema of the front parts of both lungs, but nothing was found to suggest the existence of tubercular disease. The heart and bloodvessels were sound, there was only moderate fever. The patient was placed upon a light diet and treated with alkalies, alterative aperients, and counter-irritants to the chest. About a fortnight after admission the patient began to cough up blood in small quantities at short intervals, and in spite of all that could be done according to the approved therapeutical teaching of the time—in spite of absolute rest, the strictest regulation of supplies, the application of ice to the chest, and the liberal use of various astringents—the bleeding persisted, and within a week the man died. The post-mortem examination revealed to the naked eye little that was unusual and nothing that was expected. The heart, the larger vessels, and the arterial valves were free from obvious structural change. The bronchial mucous membrane almost everywhere was swollen, congested, violet-coloured, and coated with a muco-purulent secretion. The anterior parts of both lungs were pale, dry, and emphysematous, and curious patches of emphysema surrounded by hemorrhagic extravasations were noticed in back and lower part of both lungs, which were loaded with blood. Nowhere could there be discovered the smallest evidence of tubercular disease, of any malignant growth, or of any sort of coarse structural change which could account for fatal hemorrhage. A most minute examination carried out with the aid of the microscope brought plainly to light two important facts. The first was that the seat of the hemorrhage was in the immediate neighbourhood of the emphysematous patches, and the second was that the minute vessels, the terminal arteries for the most part, were in those localities always diseased. And finally, it appeared in the highest degree probable that there existed a direct causal relationship between the condition of the bloodvessels, the emphysema, and the hemorrhage. For wherever there was an emphysematous patch there was a diseased artery; wherever the artery was much diseased the capillaries and venous radicles were also affected; and generally, although not always, where the terminal artery was obstructed and degenerating there was adjacent hemorrhage. Through the observation of these facts and their relations I was led to conclude that the order of events issuing in the hemorrhage arose and proceeded in the following way. I inferred that the initial visible movement in the malady had been some minute structural change in a terminal branch of the pulmonary or of the bronchial artery, and in consequence of

this there had been brought about a more or less complete obstruction of the supply of blood through the territory involved; that following this there arose degeneration of the capillaries and venous radicles determining a true atrophic emphysema, and that the integrity of the bloodvessels being thus impaired, the formation of thrombi or recurrent condition of pressure had brought about the hemorrhage which ended in death.

Now arose the cardinal question presented by this case, and necessary to be answered if any fresh knowledge were to be derived from it: "What was the intimate nature of the structural vascular changes to which I have adverted? There were two ways of replying to this question, each was distinct in itself, and the one which was most regarded was of the least importance. The small question was, What were the visible characters of the structural alterations in the bloodvessels? The large and crucial question was, What was the nature of the primitive dynamic changes, and which alone gave them form and meaning? In them and not in the vascular changes lay the importance of the case. The structural changes discovered in the affected bloodvessels were limited to nuclear proliferation in the middle coat, and an amorphous and hyaline infiltration of it and of the intima. When I endeavoured to determine the significance of these changes, and for this purpose studied the life history of the case, when I saw that the patient had been for years an arthritic, that he had suffered on many occasions from many of the constitutional manifestations of this diathesis, and that the structural changes in the pulmonary bloodvessels were akin in character to those which are found in the diseased articulations, I permitted myself to conclude that the malady was of an arthritic nature, and that I had seen and dealt with a case of what might be called without serious scientific impropriety, "arthritic hæmoptysis."

[The second of Sir Andrew Clark's cases is here omitted.]

It is not my intention upon this occasion to enter into any systematic account of this variety of pulmonary hemorrhage, this arthritic hæmoptysis, as I have ventured to call it. But as the cases related have led me to discontinue the ordinary method of treatment by astringents, and to try another method which seems to be more rational, and hitherto, at least, has proved more successful, I propose to relate two other illustrative cases seen in consultation with other practitioners. Some seven years ago Sir William Jenner, Dr. Wilson Fox, and I were summoned together to consult about a lady suffering from an incoercible hæmoptysis. She was a Jewish lady over sixty years of age, very stout, very "rheumatic," and always ailing. She had nodular finger joints, frequently recurring bronchial asthma, and occasional outbreaks of either eczema or of urticaria. Ten days before our visit, when suffering from an ordinary catarrh without accompanying fever,

the patient began to cough up blood, and had continued to do so in small quantities at intervals of three or four hours since. The patient had a somewhat large heart, but there was no murmur, and there was no evidence of systemic arterial disease. Within the previous two days the pulse had become quick and frequent, and the temperature had risen to close upon 100°. In the lungs there were signs of generalised bronchial catarrh, of emphysema, and of basic congestion. The patient complained of frequent cough, of great oppression of chest, and of growing difficulty in expectorating. She had, furthermore, a loaded tongue, thirst, loss of appetite, a swollen liver, and all the signs of a gastro-enteric catarrh. She had been carefully treated by absolute rest, fluid food, ice to the chest, and in succession by lead, gallic acid, and hypodermic injection of ergotin. After full discussion, it was determined that another method of treatment should be tried. The patient was ordered to have a light and rather dry diet, to be sparing in the use of liquids, to discontinue the ice, to have a calomel pill at night, followed by a saline cathartic on the succeeding morning, and to take an alkaline mixture with ammonia between meals twice in the day. Within thirty-six hours the bleeding ceased, and the patient made a speedy and complete recovery. About a year and a half ago the patient consulted me at my house for sub-acute rheumatic arthritis. She told me that since she saw me first she had had one attack of bleeding, and that it was quickly cured by calomel and salines.

About six years ago I was summoned to meet Mr. MacLaren in consultation about the case of a solicitor who had been suffering from an obstinately recurring hæmoptysis of small amount. The patient was over sixty years of age, had been always delicate and often suffered from incomplete attacks of what was considered to be rheumatic gout. He had rimmed finger-joints, patches of dry eczema, and occasional nervous headaches. A few weeks before our consultation he had contracted a feverish bronchial catarrh and was confined to the house. After a fortnight's cold he began to have some oppression of chest and to be short breathed. This was followed by a small hæmoptysis which gave relief, but the hæmoptysis recurred, and at our consultation there was no sign of its cessation. The patient had no fever and only a slight hurry of circulation. There was a general bronchial catarrh, the fore parts of the lung were emphysematous, and there was some basic congestion, greater on the right side than on the left. The tongue was furred. There was anorexia with some thirst. The bowels were inadequately relieved, and the urine was pale and of low density, but free from albumen. The patient was directed to rest and keep warm, to live upon a light, semi-solid diet, to be sparing in the use of liquids, to be freely counter-irritated over the chest, to have a succession of small doses

of calomel at bedtime, supplemented by saline aperients in the morning, and to take between meals, twice or thrice in the day, a mixture containing iodide of potassium, bicarbonate of potassium, and ammonia. This treatment was not particularly agreeable to the patient, who had medical views of his own. Nevertheless, it was adopted, and appeared so far successful that within four days of its adoption the hemorrhage had ceased. I heard of this patient from a relative some months ago, and I was told, although he led a too sedentary life, he was well and at work.

Many additional illustrations of this variety of hæmoptysis could be given, but as in each case there is a close resemblance to each other, and as in all the cases the interpretation of the pathological conditions accompanying the hemorrhage and the treatment employed for its relief were substantially the same. I conclude with a statement of the propositions which I have framed out of the results of my own inquiries.

1. There occurs in elderly persons, free from ordinary diseases of the heart and lungs, a form of hæmoptysis arising out of minute structural alterations in the terminal bloodvessels of the lung.

2. That these vascular alterations occur in persons of the arthritic diathesis, resemble the vascular alterations found in osteoarthritic articulations, and are themselves of an arthritic nature.

3. That although sometimes leading to a fatal issue, this variety of hæmoptysis usually subsides without the supervention of any coarse anatomical lesion of either the heart or the lungs.

4. That when present this variety of hemorrhage is aggravated or maintained by the frequent administration of large doses of strong astringents, and by an unrestricted indulgence in liquids to allay the thirst which the astringents create.

5. That the treatment which appears at present to be the most successful in this variety of hæmoptysis consists in diet and quiet, in the restricted use of liquids, and the stilling of cough; in calomel and salines, in the use of alkalies, with iodide of potassium, and in frequently renewed counter-irritation.—*Lancet*, Oct. 26.

29.—ON ANGINA PECTORIS.

By JULIUS DRESCHFELD, M.D., F.R.C.P., Professor of Pathology, Owens College; Physician, Royal Infirmary, Manchester.

[Dr. Dreschfeld's references to cases, and also to the interesting observations of Gaskell upon the innervation of the heart, are here omitted, as are also the writer's remarks upon pseudo-anginal attacks as they occur in hysteria, neurasthenia, and gastric and intestinal affections.]

There are few affections which cause us greater anxiety than the group of symptoms known as angina pectoris; for the fear of sudden death supervening in one of the attacks haunts the un-

fortunate sufferer. This fear is, as we know, only too well justified; for though the statistics on the point vary very much and cannot be wholly relied upon, yet we know that in a fair percentage, estimated from five to ten per cent., sudden death does take place. We know, also, that in many cases the anginal attacks may occur without a fatal issue, and in some they may after a time completely disappear. It may therefore, considering the variable prognosis, not be without interest to study more closely those cases which often, in spite of all treatment, terminate fatally, and which are now known as *true angina*, and those where, though the symptoms themselves have all the characters of angina, no fatal result is feared, and which are spoken of as *pseudo-angina*.

Let us consider first the true angina pectoris. Its symptoms, as first described by Heberden, consist of paroxysms of pain in the præcordial region, radiating in other directions, especially towards the left shoulder and along the course of the left ulnar nerve, with the feeling of great anxiety, of oppression, with more or less dyspnœa, and of pallor of the face, and variations in the pulse. These symptoms vary very much as to their intensity, and all of them are not always present. Besides the abortive attacks where the symptoms are slight, we may, according to the greater preponderance of one or other of them, distinguish several types. 1. The respiratory type; 2, the neuralgic type; and 3, the vaso-motor type. That such a distinction is not artificial will be seen from the following.

First, as to the *respiratory* type. In most cases of true angina there is not the dyspnœa which we notice in asthmatical attacks; the patient suffers from great oppression in the thorax, the respirations are superficial and irregular, and the patient has a feeling of suffocation; he is unable to move; he stands fixed, and looks for some support. In some few cases, however, there is marked dyspnœa, the breathing is laboured, the respirations are deep, and the patient, instead of remaining fixed to the spot, rushes to the open window or into the fresh air. Such cases are rare, but that they are of true anginal nature, and may terminate fatally.

The second type is the *neuralgic* type, and the principal symptom is the pain. This is situated usually beneath the sternum or præcordium, radiating to the left shoulder, and thence along the inner side of the arm to the elbow, or often to the fourth and fifth finger of the left hand. The pain may radiate to the right shoulder and right ulnar nerve, to the left side of the neck, to the back, abdomen, and even lower extremities: the abdominal pain may be situated in the epigastrium, or in the ovaries or testicles. Along with the pain, or often after the pain, we notice numbness and tingling and other abnormalities of sensation. When, then, pains are associated with the after symptoms of angina the diagnosis is easy. Sometimes, however, the neuralgic pains may

form the chief symptom. The epigastric pain is occasionally the prominent feature of an anginal attack, and such cases as recorded by Leared, by Todd, and by Broadbent and others, are easily mistaken for simple gastralgia.

The third type is the *vaso-motor* type, which has long since been described as a separate form by Nothnagel. This type is chiefly characterised by vaso-motor symptoms, in some cases following, in others co-existing with, the præcordial pain. There is marked pallor, a quick pulse, regular or intermittent, sometimes with increased, at others with diminished, arterial tension. Vertigo, paræsthesia or anæsthesia of the left arm, or of both arms, are often associated with these vaso-motor symptoms, and flatulence and vomiting occasionally occur towards the close of the attack. The vaso-motor type is especially seen in pseudo-angina; in true angina the vaso-motor symptoms are often preceded by præcordial pain and præcordial oppression.

If we now consider the *cause* of the true angina, the nature of the attack, and the complex symptoms, we meet with so many different views, that it would lead me much too far even briefly to allude to them. Nor is it necessary for the purpose I have in view. The lesions most commonly and most constantly found in persons who have died from angina pectoris is some affection of the coronary artery, obstructing the lumen of that vessel; the lesion most commonly found is atheroma of the coronary artery; occasionally thrombosis, embolism, or, especially in younger persons, syphilitic disease of these arteries is seen. We can thus, as is well known, see how it is that endocarditis and particularly diseases of the aortic valve are so often associated with attacks of angina, as in such cases the coronary arteries get so easily compressed and their lumen gets narrowed. In a number of other cases the nutrition of the heart may be interfered with to a considerable degree, even with a healthy condition of the coronary arteries, as in cases of excessive dilatation of the heart, chronic pericarditis, chronic myocarditis, &c. In relation to this subject I wish particularly to refer to one point, not sufficiently noticed, and that is, that the coronary arteries are often already markedly atheromatous when the other arteries of the body show as yet no changes, and this, no doubt, is due to the fact that the blood enters the coronary arteries under very great pressure, and this easily leads to weakening of the middle coat, and subsequent atheromatous changes in the intima of the artery. This explains the occasional appearance of angina in young persons, where there are as yet no symptoms of general arterial degeneration. The heart I show here is that of a boy, æt. 12, who died suddenly in the street whilst running quickly. The heart shows no valvular changes, the aorta at its commencement shows only slight atheroma; the coronary arteries, however, are most markedly affected with atheroma.

Again, atheroma occurs much more frequently than is generally stated: it is not only noticed in old age, in alcoholism, syphilis, rheumatism, gout, and renal diseases, but also in many other conditions associated with increased arterial resistance, as in persons accustomed to great muscular exertion, in those who have too freely partaken of the pleasures of the table, in acute and chronic infectious diseases, and in many nervous affections, due to excessive mental work, mental strain, &c. Heredity, as pointed out especially by many French observers (Bouillaud, Raynaud, Huchard, and others), has an important share also in the etiology of atheroma, and explains the appearance of arterio-sclerosis in comparatively young persons. From my own observations I am also led to believe that congenital syphilis attacks the aorta and also the coronary arteries more often than is generally supposed, causing endarteritis, which may give rise to diminution of the lumen of the coronary arteries. The majority of cases of angina pectoris have thus one lesion in common, and that is obstruction of the coronary arteries.

There remain, however, a good many cases where true angina pectoris followed by speedy death has occurred. Careful examination of the coronary arteries throughout their course will in some few cases show arterio-sclerosis in some small isolated patch, and in all cases of sudden death we should never be satisfied with only looking at the openings of the coronary arteries, but follow up their whole course. The number of cases of fatal angina pectoris where no lesion whatever is found either in the heart or coronary arteries becomes thus very much reduced, yet that they do occur is well known. Two fatal cases have come under my own notice, where the attacks of angina were typical, and where the most careful examination post-mortem showed no trace of any disease.—*Practitioner*, Jan. 1890, p. 28.

30.—ON ABNORMAL SLOWNESS OF PULSE—BRADYCARDIA.

By G. W. BALFOUR, M.D.

[The following excerpt is taken from Dr. Balfour's important essay on the Symptoms and Sequelæ of the Senile Heart.]

The converse of tachycardia is *Bradycardia*, abnormal slowness of the pulse. This has been in my experience a much more common concomitant of the senile heart than the typical paroxysmal tachycardia, though by no means so common as simple tachycardia. There are two well-marked varieties of bradycardia, one in which the heart beats at its normal rate, but every second or third pulsation is too feeble to reach the periphery, so that we have a pulse beating at half or sometimes only at a third of the rate of the heart. In the second variety, heart and pulse are alike slow, and the rate may even be less than 30 per minute; I have known

it down to 17. Hope was acquainted with both varieties; he says, "When one or two beats are regularly and permanently imperceptible in the pulse, such cases constitute the bulk of those in which the pulse is described by non-auscultators as being singularly slow,—for instance, 30 or 20 per minute. In a few rare cases, however, it is really slow." So far as my own experience goes, the rarity is all the other way, as I have seen many more really slow hearts than hearts beating at the normal rate, but with abnormally slow pulses. All slow pulses, from whatever cause, are apt to be alarming from the tendency there is in such cases to pseudo-apoplectic and pseudo-epileptic attacks. The first case I saw of a heart beating at the normal rate, but with a slow pulse, was one of this character: an old lady with a gouty history, but who never had regular attacks, was suddenly seized, while shopping, with what seemed to be an epileptic attack. These seizures continued to recur whenever she attempted to make the slightest exertion, and at the time I saw her she was unable to rise from the recumbent position without bringing on an epileptiform attack. Upon examination, I found that her heart was dilated, but without any murmur, only an accentuated aortic second; that it was beating at the rate of 60 per minute, but that only every third beat was powerful enough to reach the periphery, so that the pulse-rate was only 20 per minute. Remembering Stokes' admirable essay on the connection of pseudo-apoplectic attacks with the feeble circulation he believed to depend upon fatty degeneration of the heart, and remembering also the researches of Kussmaul and Tenner on epileptiform convulsions from hemorrhage, there was no difficulty in connecting the epileptiform seizures with the state of the heart, and there was just as little difficulty in determining upon the appropriate treatment. The result was most satisfactory,—the old lady who had been regarded as the victim of serious senile epilepsy had no more attacks. Within a week she was able to entertain some friends at dinner, and she lived for several years without any recurrence of her serious symptoms, dying gradually at last from asthenia.

A good many of these slow hearts have epileptiform convulsions, from which some die. In the fatal cases there is always the doubt that there may be some other cause, but when the attacks cease when the pulse returns to its normal frequency, the diagnosis does not seem doubtful. And it does seem strange to have a sphygmographic tracing with a great round-topped predicrotic wave, showing an apparently high blood-pressure, in a case where convulsions have recurred because of an abnormally low blood-pressure in the brain,—a further proof, if any were necessary, that a sphygmographic tracing exhibits mainly the condition of the arterial wall at the spot where it was taken, and cannot be relied upon as an exponent of the general intra-arterial blood-

pressure. All the slow hearts I have seen have shown evident signs of dilatation, but they have not usually shown any marked indications of weakness.

Stokes describes as one of the diagnostic marks of a fatty heart "a permanently slow pulse, the rate of which varies from 50 to 30 in the minute, or even less." To this he was probably led by his knowledge that in fever cases a remarkably slow pulse is often associated with softening of the left ventricle; also by the fact that very slow hearts with signs of dilatation are, I suppose, invariably senile hearts, and are, therefore, not unlikely to have some patches of fatty degeneration about them in case of death. But Stokes brings forward no proof, and even he confesses that the diagnosis between fatty degeneration of the heart and a heart simply dilated and weak is very hard to make. Now-a-days we know that slow hearts are not necessarily fatty, and also that there is neither any one symptom, nor any group of symptoms, which can be regarded as pathognomonic of a fatty heart, so that the old idea of there being a recognisable disease called fatty degeneration of the heart is no longer entertained.

A heart which beats at an abnormally slow rate does so, undoubtedly, not because of any change in the condition of its muscular fibres, but because its movements are retarded by an inhibition coming through the *vagus*, and affecting some part possessing a high potentiality, presumably the sinus or auricle. A slow heart does not always give rise to pseudo-apoplectic or pseudo-epileptic seizures, and it is not inconsistent with prolonged life and a fair amount of health.—*Edinburgh Medical Journal*, Jan. 1890, p. 601.

31.—ON SOME POINTS IN THE PROGNOSIS OF VALVULAR HEART DISEASE.

By FREDERICK P. HENRY, M.D., Physician to the Philadelphia, and to the Jefferson Medical College Hospitals.

With reference to prognosis, cardiac affections may be divided into the three customary classes: 1. Non-organic diseases. 2. Diseases of the valves. 3. Diseases of the muscular structure. It is of the utmost importance, from a prognostic point of view, to be able to separate the non-organic from the organic disorders, and yet in certain cases it is extremely difficult to make the distinction. As a rule, the diagnosis of non-organic disease is justified when the most careful physical examination fails to detect anything abnormal either in the size of the heart or in the sounds to which its action gives rise. This diagnosis will receive support if the patient is young, of a neurotic diathesis, and especially if of the female sex. It must not be forgotten, however, that an anæmic murmur may be present, and when this occurs in connection with the manifold subjective and objective symptoms of functional

heart disease the diagnosis must often be held in reserve by the greatest expert in cardiac diseases. Having decided the murmur to be organic—i. e., dependent on some valvular imperfection—the questions which at once arise are: 1. Does the character of the murmur—that is, its seat, intensity, tone, &c.—influence the prognosis? 2. Is there any prospect of a cure?

The best prognosis, other things being equal, is afforded by cases of mitral insufficiency, by which I mean that in this form of valvular lesion compensation is more readily made and maintained than in any other. The worst form of valvular defect is aortic insufficiency, and it is in this variety of cardiac disease that sudden death is most apt to occur. Between these two extremes lies mitral stenosis. Of course there are numerous exceptions to the rule just laid down. For example, cases of aortic insufficiency of ten, fifteen, or twenty years' duration are not infrequently observed, but on the whole, the facts will be found to be such as I have stated.

In estimating the gravity of a valvular lesion it is important to observe whether, besides the murmur, the valvular sound can also be heard. When the normal valvular sound is entirely replaced by a murmur, the lesion is more extensive and the prognosis, of course, more grave than when both murmur and sound can be detected. It is a common mistake to suppose that the gravity of the lesion is in direct ratio to the intensity, the loudness, of the murmur, whereas the fact is that loud murmurs are generally more favourable from a prognostic point of view than faint ones. The loudest valvular murmur I ever heard was in a boy, still living, and now about twelve years of age, and was undoubtedly due to a congenital stenosis at or near the orifice of the pulmonary artery. With reference to loudness of murmurs it is well known that in mitral stenosis the murmur is louder in an earlier than in a later stage of the affection. In other words, the narrower the button-hole contraction of this form of valve lesion, the fainter is the sound to which it gives rise.

I have used the word "cure" in connection with valvular heart disease. I propounded the question whether there was any prospect of a cure of this much-dreaded malady. It is easily answered. A number of undoubted cures have been reported by the most competent observers, but the prospect of cure, in the sense in which I am using the word, is infinitesimal. By cure I mean the disappearance not only of all the symptoms, but also of all the signs of heart disease. Such cases are on record, and a number of them have been collected by Professor Leyden of Berlin. The question of the disappearance of a cardiac murmur is a delicate one, its presence or absence being, as a matter of course, largely dependent on the existing degree of blood pressure. It is a matter of almost daily observation that the intensity of a murmur may

vary within wide limits, so that these instances of reported cures will always be open to criticism. The fact, however, remains that, notwithstanding the presence of a well-marked murmur indicative of serious functional impairment of a valve, an individual may enjoy a very fair degree of health.

As long as there is perfect compensation for the lesion, the patient with valvular heart disease is conscious of no bodily imperfection. It is a great mistake, however, to encourage such a person in any attempt to compete, whether in the way of business or amusement, with individuals in perfect condition—i.e., if such attempts are attended with physical exertion. The inevitable medical tendency to pass from one extreme to another is nowhere more marked than in the prognosis of heart disease. It is not long since the belief was prevalent that valvular heart disease doomed the patient to a speedy death, in spite of the fact that the individual in whom the diagnosis was made, perhaps by mere accident, was conscious of no cardiac trouble. Such views were definitely disproved by Sir Andrew Clark, who reported six hundred and eighty-four cases of valvular disease which had been in existence for at least five years without leading to any serious impairment of health. A complete reaction from the old pessimistic views at once set in, and, instead of immuring such patients in their homes and condemning them to a life of inactivity, they are now often encouraged to exert themselves to the utmost of their limited capacities. In my opinion, the present tendency is to encourage patients with heart disease to over-exertion. They are not sound, vigorous individuals, and, although they should, as far as possible, keep themselves from brooding over their ailment, they should also never completely forget its existence. The only exercise in which they should indulge to any great extent is walking. Any exertion which involves much use of the arms, such as rowing, is injurious, and tennis, base-ball, or swimming is suicidal. The latter is true of cold bathing, and probably the most injurious combination of exercise possible is swimming in cold water.—*New York Med. Journal*, Dec. 21, p. 674.

32.—ON THE THERAPEUTICS OF DIGITALIS.

By H. C. Wood, M.D., LL.D., Professor of Therapeutics in the University of Pennsylvania, U.S.A.

[The following excerpt is taken from a lecture delivered by Professor Wood at the University of Pennsylvania.]

That condition of heart disease which is especially met by digitalis is endocarditis; and you will find the greatest triumphs achieved by the drug in those cases in which there is simple dilatation or weakening of the cardiac walls. Even when the weakness of the wall is due to a fatty or other degeneration, digitalis

is often of the greatest service. There is a type of disease that was commonly seen during the war among soldiers, which is closely related to heart dilatation, viz., the so-called irritable heart. This condition of the heart is seen at times in civil practice. The symptoms which it produces consist of excessive cardiac palpitation upon the slightest exertion; there is continual excitability of the heart, followed, usually, but not immediately accompanied, by organic change. The organic change sometimes takes the form of hypertrophy; more frequently the "irritable heart" ends in a weak heart.

Digitalis is especially useful in most cases of disease of the heart, not only by virtue of its strengthening power, but by virtue of the peculiar action which it exerts upon the pneumogastric nerve. The so-called irritable heart of the soldier is undoubtedly the outcome of pneumogastric depression, and is most effectively met by rest and the use of digitalis.

The opposite condition to dilatation, viz., hypertrophy, is aggravated rather than relieved by digitalis. In hypertrophy there is excessive muscular development, and this excessive output of muscular force is increased by the use of digitalis. Here you require remedies to depress cardiac action. The number of cases of heart disease, however, in which the walls of the heart alone are affected is comparatively few. In the great mass of cases we have valvular lesions, causing cardiac muscular lesions. It is especially in the treatment of cardiac valvular lesions that digitalis is of service.

Let us take the individual lesions of the heart, for a moment, and consider how digitalis acts. Take a simple case for our purpose, that of mitral regurgitation. There you have a heart in which, when the ventricle contracts, the blood, instead of rushing out into the aorta, is some of it forced back into the auricle; and thus the aorta gets only a portion of what is its due. The aorta being empty, the whole arterial system is empty, and everywhere, from all portions of the body, the cry comes for more blood. The heart attempts to respond; and by and by, from perpetual irritation, the heart becomes as it were angry; it loses the power of self-control. Now, instead of the 60 or 70 strong beats a minute that you ought to have, you have a heart that is beating 120 or 130 times a minute, it may be—at all events far above the normal rate, and each beat is ineffectual. For a heart-beat to be effectual it must have a ventricle full of blood and be able to contract upon something and to throw that something into the aorta. Your little, continual, impatient beats mean continual emptiness all over the arterial system, continual cries for more blood, continual loss of potency; and so we have a weakened, cold circulation everywhere, and a circulation that grows worse and worse.

How does digitalis bring relief? It is not a rag with which

you can stuff the lesion down. It is not a lever that you can put on the mitral valve. Digitalis does this: First by virtue of its action on the inhibitory nerve and, to some extent, by virtue of its action on the heart muscle it quiets the heart. It makes the heart deaf to the impulses coming to it from all portions of the system; and, instead of 120 or 130 beats a minute, you have a pulse of 60 or 70 a minute; and during the long pauses the ventricle fills itself with blood. Now when it comes to contract, it finds that it has within its embrace a great mass of blood which can be squeezed out through the aorta. So that, in the first place, you have produced quiet in the heart, you have a heart filled with blood that may be expelled; and when the contraction comes it is a great, powerful contraction, in which has been gathered up a force that previously was wasted in many different contractions. More than this: you know very well that when you used the pump in order to atone for the leaking valve, you had to make the strokes very powerfully and quickly; and you know very well that there is friction in the small opening, which is greatly increased by the power behind the flood forcing the flood through. The aorta is wide and open and ready for blood; the little opening in the mitral valve is choked up with excrescences, is irregular and small: so that, when the powerful contraction comes, there is an immense increase of friction in the mitral valve with but little increase in the aorta and the blood chokes itself up, as it were, so that but very little blood gets up into the venous system. You see, under these circumstances, how digitalis increases not only the amount of blood that goes out of the aorta, but increases the proportionate percentage of blood that goes out as compared with that which goes backward. I have hardly time to-day—in fact, I have not time in the hour allotted to me—to take up the individual cardiac valvular lesions and trace out the way in which digitalis does good in each individual lesion.

There is one class of valvular diseases in which, common opinion says, digitalis does harm, and that is, in aortic disease. The use of digitalis in diseases of the aortic valve is governed by the same laws which govern its use in diseases of the mitral valve. Whenever in diseases of the aortic valve the heart is weak, you use digitalis precisely as you use it in diseases of the mitral valve. But it so happens that, in cases of aortic disease, excessive hypertrophy is common, while it is very rare in cases of mitral disease. So that if you take at random a thousand cases of cardiac disease, you will find that digitalis suits a larger percentage of mitral disease cases than of cases of aortic disease. This is not because there is any difference in the application of the remedy or in the rules governing it, but simply because aortic disease more frequently gives rise to excessive hypertrophy than does mitral disease.

Very extraordinary permanent results are sometimes seen in heart disease from the use of digitalis. I have seen a case, for instance, in which a laboring man, unable to work, whose condition in his cardiac indications was apparently hopeless, become able to work in a few days and go for some months without taking more digitalis. It would seem, therefore, in view of its effects in heart disease, that the drug does more than simply stimulate the heart, and that it ought to be classed as a cardiac tonic and food rather than a cardiac stimulant. It is very easy to see how digitalis, under these circumstances, does good. You know that when the aorta is filled and distended with blood coming from a powerful contraction, the circulation in the cardiac walls is especially affected. Now you have a heart, we will say, that is overworked from valvular disease, a heart that is unable to throw sufficient blood to feed the general system, a heart that is starving itself, because failure in circulation is felt in the heart wall more severely, even than in the periphery of the body. You have, therefore, a heart that is overworked and underfed; and you know full well that when you are overworked and underfed, you undergo rapid exhaustion, and have need of change. I have no doubt that one cause of heart failure and valvular lesions is underfeeding of the heart wall with blood. Now, you restore that heart to a normal action temporarily by the use of digitalis, by the stimulation of digitalis, if you please; and, consequently, when the current rushes out through the aorta, there is a great mass of it to go into the veins and arteries to feed the walls. When the heart contracts with a spasm, it contracts with such force that it empties out all the juices from the muscles and makes a clear, open space for the blood to flow in and to feed the heart. And so the heart ceases from its overwork, has a rest from its excessive labour, and is also fed more liberally than it was before. The digitalis, in these cases, does good temporarily by restoring the balance of the circulation; permanently, by bringing rest and food to the heart itself.

You can see how, properly used, digitalis is a remedy of great value in the treatment of the formative phase, so to speak, of heart disease and in convalescence. It regulates the heart's action, it causes the muscle to be well-fed, and it stimulates activity in that muscle. Its use, therefore, is of immense importance in building up activity in the heart structure, if there is any hope for the patient.

Let me now say a few words in regard to the use of digitalis in old cases of heart disease. In the cases of heart disease of which I have been speaking and which are not very severe, especially in the early stages, I would recommend ten drops of tincture of digitalis, three times a day. But there is a class of cases in which most wonderful therapeutic results have been attained by

the inordinate use, so to speak, of digitalis. I remember being called upon by an old German doctor, who asked me to take care of a lady patient during his absence. The lady lived in Cherry Street, opposite the St. Paul burying-ground. When I visited her she was sitting at a window, leaning forward, and in that horrible agony of a protracted struggle for breath which attends the last stages of heart disease. After a few formal words of introduction to the patient, I asked the physician, "Have you given digitalis?" He replied that he had. I then inquired, "Have you given massive doses?" He answered, "No." I asked, "Are you and is she willing to take the risk?" He replied substantially that it would be better for the patient to be in the graveyard, to which he pointed, than to continue to suffer as she was then suffering. The lady assented to my proposition, and I began to administer to her doses of half a drachm of tincture of digitalis, three times a day. When the doctor came back, three weeks later, the lady herself came down to the door to greet him.

Now remember that this case was an advanced stage of cardiac disease, in which life was a misery and death a thing to be hoped for. By the use of digitalis the patient was restored, for the time being, to the power of active life. But mark the final result! The old woman, early one morning, fell dead upon the stall of the market where she was making her purchase. Now, this woman was not killed by digitalis. Digitalis had not produced a sudden cardiac arrest. But what digitalis had done was this: it had steadied it, stimulated it, built it up, brought it into that condition in which it was able to utilize the last grain of force that was remaining in the storehouse of its power, and to make use of that force until, at last, it was expended. When the last grain was gone the heart stopped. Life had been prolonged, life had been made comfortable; death, when it came, came as the lightning shock. Therefore, whenever you have these old cases of heart disease, make up your mind that you are justified in using these enormous doses of digitalis; but remember what the probable end will be, and take care that you warn the patient and warn the friends of the patient, so that they may know what is to be expected.

One word in regard to the use of digitalis in cases of cardiac dropsy. You cannot rely upon digitalis as a direct stimulant to the urinary or secretive organs. When you have failure of urinary secretion, it is because there is failure of circulation in the kidneys. Under these circumstances, of course, by regulating the blood circulation the digitalis will increase the urinary secretions. The great value which it has in cardiac dropsy is by restoring everywhere the balance of the circulation.—*Philadelphia Medical News*, Feb. 1, 1890, p. 109.

33.—REMARKS ON AN IMPROVEMENT IN THE USE OF THE HÆMOCYTOMETER.

By S. MONCKTON COPEMAN, M.B., Demonstrator of Physiology at St. Thomas's Hospital, London.

It will be generally admitted that a considerable drawback to the usefulness of the hæmocytometer lies in the alteration which always occurs to a greater or less degree in the corpuscles when the blood has been considerably diluted with any of the fluids which are usually advocated for this purpose; the red corpuscles not infrequently swelling up to nearly twice their usual bulk, sometimes losing their hæmoglobin, which is given up to the surrounding fluid, and, most important of all, becoming practically indistinguishable from the white corpuscles. Gowers has proposed to count the latter by raising the objective slightly out of focus, when he states that the white corpuscles, by virtue of their greater refractive power, stand out clearly from the red ones among which they lie. This method, however, is at best unsatisfactory, and has the disadvantage of being very trying to the eyes, so that, having occasion to use the instrument pretty frequently, I searched for some means of distinguishing them more readily. It seemed to me that the simplest method of doing this would be to use some dye, which, while staining the white corpuscles, would leave the red untouched. Numerous stains were tried, mostly the aniline dyes, because of their greater rapidity of action, and after a considerable number of trials, methyl violet was at last fixed upon as being apparently that which was best suited for the purpose.

Up to this time I had always used Gowers' solution, and to it the dye was added in varying proportions, the resulting coloured fluid being then used for diluting the blood prior to its examination in the cell of the hæmocytometer. Further experiments, however, appeared to show that Gowers' solution might be with advantage replaced by a much less concentrated solution of sodium chloride, the fluid I now use being made up as follows:—Saturated alcoholic solution of methyl violet, 1 c.c.; normal saline solution (NaCl .75 per cent.), 100 c.c. This forms a stock solution, one part of which, when required for use, is to be diluted with ten parts of normal saline solution, thus giving a solution of methyl violet of the strength of one part in a thousand. This should be most carefully filtered before use to get rid of any solid particles, and then forms a pale violet-coloured solution, which, when seen in a three-quarter inch test-tube, readily allows the passage of light through it. This fluid is used in a precisely similar manner to those usually recommended, the blood being mixed with it in the small glass pot supplied with the instrument (supposing it to be Gowers' pattern), and a drop of the mixture placed in the

centre of the cell. It is then covered, and the springs fixed in place, after which it must be set aside for a few minutes (two or three being usually sufficient), when the corpuscles will be found to have settled on the floor of the cell. The white corpuscles can now be distinguished from the red with the greatest ease, as they will be found to have taken on the stain, which is not the case with the red. At the same time the fluid is of such a degree of dilution that the field of the microscope is not perceptibly tinted.

The various solutions generally employed for the dilution of the blood—such as Gowers', Potain's, and Keyes', of which the first two contain a considerable quantity of sodium sulphate—have apparently been devised with the idea of obtaining a fluid as nearly as possible of the same specific gravity as the plasma; but this advantage, which, I believe, is apparent rather than real, is more than counterbalanced by the fact that the large amount of salts present must cause an alteration in the appearance of the corpuscles. On the other hand, the solution I propose does not appear to cause any such alteration, the small percentage of the aniline dye being quite inoperative in this respect, while the corpuscles sink in it all the more readily from its low specific gravity. The staining of the corpuscles is also of great advantage, particularly when examining blood from a case of leucocythæmia, for instance, in which it is desirable to determine from time to time as accurately as possible the absolute number of white corpuscles present and their relative proportion to the red. Indeed I feel sure that after a fair trial it will be generally allowed that the use of the coloured saline solution reduces the labour of an observation by at least one half, at the same time that it renders the results much more reliable.

It not unfrequently happens that it is by no means easy to make out the squares on the floor of the cell, and it has been proposed to rub in the scrapings of a soft lead pencil so as to show them up better. If this be done, one is very liable to find large particles lying on the squares, which are not easily got rid of without at the same time removing the finer particles from the lines, so that it would be much better to use some substance which is always at hand in the laboratory, and which is already in the form of an impalpable powder. One of my assistants, Mr. Hallam, suggested the use of carmine for this purpose, and we found on trial of it that it answered the purpose admirably. A few grains should be placed on the floor of the cell, and then gently rubbed in with the end of the finger, when on examination with the microscope the squares will be seen to show up most beautifully, and if at the same time the solution proposed above be used the enumeration of the corpuscles becomes simplicity itself.—*Lancet*, Jan. 11, 1890, p. 73.

DISEASES OF THE ORGANS OF RESPIRATION.

34.—ON THE PHYSICAL SIGNS OF THE LATE STAGES OF PHTHISIS PULMONALIS.

By THOMAS HARRIS, M.D., M.R.C.P., Assistant Physician, Royal Infirmary ; Physician, Hospital for Consumption, Manchester.

The percussion note over a cavity varies remarkably, since so much depends upon the position of the cavity, its size, and the condition of the surrounding lung. In many cases of cavities of the lung, probably in the majority of instances, we find only dulness on percussion over the seat of the cavity. This is seen where the cavity is small, and where, even if it is of considerable size, it is surrounded by consolidated lung tissue. On the other hand, some variety of tympanitic resonance is not unfrequently met with as a result of percussion over a cavity. The superficial position of a cavity is favourable to the development of such a percussion note. According to the size and position of a cavity, the note may be distinctly tympanitic, or of only a shallow tympanitic quality. Rarely is a cavity sufficiently large and favourably placed to give rise to an amphoric note. Such resonance is far more frequently associated with pneumothorax than with pulmonary excavation.

A cavity which under one set of conditions gives rise to a tympanitic note may, under different conditions, give rise to some alteration in the pitch of that note. One such change is that first pointed out by Wintrich. That observer noticed that the percussion note over a cavity was frequently altered in pitch according as the patient kept the mouth open or closed. He observed that the note became lower pitched when the mouth was closed, and sometimes lower still when the nostrils as well as the mouth were closed. This change in pitch cannot be demonstrated in all cases, since for its production it is necessary that the cavity is in free communication with the bronchi. Where a cavity exists which does not communicate with the neighbouring bronchi, the pitch of the percussion note is the same whether the patient has the mouth open or closed. In some cases the alteration in pitch is only manifest when the patient is lying down, whilst it is not evident when he is sitting up; or it may be detected when he is sitting up, but not when he is in the recumbent posture. This difference, as pointed out by Moritz and Gerhardt, probably depends upon the position in which the cavity communicates with the bronchi and upon the presence of fluid contents in the cavity, which contents are able in one position to occlude temporarily the orifices of the bronchi, but, with an alteration of position of the patient, the contents change position and leave the orifices of the tubes free.

In exceptional instances the tympanitic percussion note over a

cavity may be replaced by a toneless note where the space becomes filled with secretion, and that dull note may give place again to a tympanitic one when the secretion is expectorated. In still rarer cases of a large cavity with much secretion simple change of position alters the percussion note, so that a part of the chest which, for instance, was tympanitic in the recumbent, becomes dull when the patient assumes the erect posture. Eichhorst states that in some cases the tympanitic note detected over a cavity becomes higher pitched on a deep inspiration, and lower with expiration. The effect of a deep inspiration may not merely raise the pitch of the tympanitic note, but cause the tympanitic note to be replaced by a dull one (Wintrich). Another sign, which was pointed out by Gerhardt, is in rare cases detected over a cavity. This is the alteration of the pitch of the percussion note by simply changing the posture of the patient, such alteration being a consequence of the shape of the cavity becoming altered by the different position the fluid contents of the cavity assumes.

We thus see that percussion over a cavity may reveal simple dulness or it may show tympanitic resonance. The pitch of the tympanitic note, we have also learnt, may possibly vary with respiration, or according as the patient keeps the mouth closed or open, or with the change of posture of the patient. You must not expect to find these variations of pitch easily demonstrated or of frequent occurrence. Many of the phenomena above described are only rarely to be found, and require the ear to be well educated before they can be recognised.

Cracked-pot sound can frequently be elicited over a cavity, but it is a sign of very little diagnostic value. It may be found over a cavity, over simple consolidation of the lung, and also frequently over the pliable chests of perfectly healthy people, especially children.

The auscultatory signs in the late stage of phthisis vary considerably. This variation in part depends upon the different stages in which the phthisical process is present at various parts of the lungs. Over some part of the chest we may find signs indicative of the early stage of the disease; in other parts those resulting from softening of tubercular foci, and over other portions may be signs due to excavation. Not only, however, do we meet with this variety of signs in the late stage of phthisis in consequence of different stages of the disease being present at the same time in the lungs, but we also find that the auscultatory signs audible over cavities differ remarkably in different cases. In other words, the auscultatory phenomena associated with cavities are not the same in all cases. In many cases the difference in the signs is explicable by the difference in the size of the cavity, by its position, by the condition of the surrounding lung, or by the relation of the cavity to the bronchial tubes. But in other cases we are unable to explain why a particular cavity, which we have an opportunity of

examining on the post-mortem-room table, did not give rise to more definite and characteristic signs. We not uncommonly meet with cavities which have not given rise to characteristic signs during life, and whose presence have not been diagnosed, and also in many such cases the position, size, and surroundings of the cavities are such as would lead us to expect that very definite signs would be present during life. This great variation in the auscultatory signs is but one cause of the difficulty in diagnosing the presence of a cavity. Another cause of difficulty arises from the fact that simple consolidation of the lung, especially where such consolidation is in the immediate neighbourhood of large bronchial tubes, may give rise to signs of the same nature as those which may be heard over a cavity. There are very few signs which are pathognomonic of a cavity, and cavities very frequently exist without giving rise to those few signs. The diagnosis of the presence of a cavity in a particular part of the lung is often made in consequence of the presence of auscultatory phenomena which, the physician forgets, may result from consolidation alone or from a consolidated area which is commencing to undergo softening. We may find simply weak respiration (i.e., a respiratory murmur which corresponds more to weak vesicular breathing than to respiration of the bronchial type) or complete silence over a cavity even of considerable dimensions. In such cases the diagnosis by auscultation of the presence of the cavity, it is needless to say, is an impossibility. In other cases the breath sound is obscured by the presence of a large number of râles. The râles, which are suggestive of the presence of a cavity, are those of large size and of gurgling character. The large gurgling râles may in rare cases be accompanied by metallic tinkling, a phenomenon which is rarely met with over a pulmonary cavity, but is of more frequent occurrence in hydro-or pyo-pneumothorax. Instead of weak or obscured respiration, we not unfrequently find over pulmonary cavities some form of blowing and hollow breathing. The more marked the hollow element is, the more suggestive the breath sound is of the presence of a cavity rather than of consolidation of the lung. The respiration may be bronchial, tubular, cavernous, or, in some rare cases of large excavations, amphoric. The acceptance of blowing and hollow breathing as indicative of the presence of a cavity requires caution. We may get the respiration presenting both the blowing and, to a certain extent, the hollow qualities over a part of the lung which is the seat of simple consolidation, when that consolidation is in the neighbourhood of large bronchial tubes. The significance of the sign as indicative of excavation depends upon the degree of the hollowness, and also upon the position at which such respiration is audible. If we have distinct hollow blowing breathing audible over the extreme lung apex, where no large bronchial tubes exist, the inference as to the presence of a

cavity in the apex is a very strong one. On the other hand, similar respiration heard over the interscapular region, in the neighbourhood of the spine of either scapular, has not nearly the same significance, in consequence of the proximity of the large bronchi.

Amphoric respiration, with or without metallic tinkling, is occasionally but rarely audible over a pulmonary cavity. A phthisical excavation is rarely large enough, and probably its wall is usually not sufficiently smooth, to give rise to these phenomena. When, however, they are heard, and pneumothorax can be excluded from the diagnosis, their presence is conclusive proof of the existence of a pulmonary cavity.

Vocal resonance varies considerably in cases of pulmonary cavities, and is therefore a sign of comparatively little value. Whispering pectoriloquy is a sign very frequently audible over a cavity, but it may be very marked over simple consolidation of the lung without there being even dilatation of the bronchial tubes.

Succussion sounds are occasionally audible over pulmonary cavities, but cavities are rarely sufficiently large to give rise to these signs. They are more frequently audible over hydro-pneumothorax or pyo-pneumothorax than over large excavations in the lung substance.

It will be thus seen that there are but few signs which when present are conclusive evidence of the presence of pulmonary cavities, and also that very frequently pulmonary cavities exist without giving rise to signs which are pathognomonic of their existence. We need to carefully bear in mind that simple consolidation of the lung often gives rise to signs which are mistaken for those associated with the existence of cavities. As a rule, however, although the diagnosis of the presence of a cavity is difficult, we are able to say whether the destructive changes in the lung in a particular case are advanced or not; but in some cases we are unable to be certain even on this point, because very extensive destruction of the lungs may be present, and yet give rise to very insignificant physical signs. Another point of considerable importance bearing on this same subject is the fact that in advanced cases of phthisis we may have the physical signs much more marked at the base than at the apex, and yet when we have an opportunity of examining such cases after death we find that the disease is much more advanced at the apex than at the base. Such cases are very apt to be mistaken for cases of primary basal phthisis; but in reality they are only cases where the signs of the cavities in the upper parts of the lungs are few and indefinite, whilst the signs of those existing at the base and of the softening which is taking place there are more evident. Cases of basal tubercular phthisis—i.e., phthisis commencing at the lower part of a lung—do occur, but they are probably more rare even than is supposed.—*Lancet*, Dec. 21, 1889, p. 1266.

35.—REMARKS ON INTRA-LARYNGEAL INJECTIONS IN THE TREATMENT OF PULMONARY AFFECTIONS.

By J. WALKER DOWNIE, M.B., Surg. Western Infirmary, Glasgow.

[Mr. Walker Downie appends to the paper from which the following excerpt is taken, the temperature charts of two cases of phthisis, which show that a very striking reduction of the fever curve can be brought about by the method of treatment advocated.]

During the past six months, and largely through the kindness of several of my colleagues at the Western Infirmary, I have had ample opportunity of testing this, one of the most recent methods suggested for the treatment of pulmonary disease. In all—in hospital and in private practice—I have treated somewhat over 40 cases. In this number are included patients suffering from tubercular laryngitis with slight pulmonary implication, early phthisis pulmonalis, pulmonary cavity, bronchiectasis following long-standing bronchitis, and gangrene of the lung. Notwithstanding the fact that the cases were in no wise picked cases, all, save two, expressed feelings of benefit in several ways.

At first I employed solutions of menthol in rectified spirits, varying in strength from 10 to 15 per cent.; but on account of the glottic spasm produced by its introduction into the larynx in several patients, I substituted, at an early date, olive oil (used by other experimenters) as the solvent and vehicle of the drug exhibited. Pure carbolic acid, creasote, and eucalyptus, each dissolved in olive oil, I also employed, the latter, however, to a very limited extent only. Those to whom the eucalyptus was administered complained of its smell and taste, as communicated to the palate by the expired air: "it had the taste of pain," one said, and on account of the loathing it produced in others, it was, without further trial, laid aside. I then returned to the use of menthol dissolved in olive oil of the strength of 12 per cent., with the addition of 2 per cent. of pure creasote, the latter being especially useful where foetor of the breath existed. I also discarded the use of the special syringe manufactured by Continental instrument makers, principally with the idea of popularising this method of treatment by having the apparatus simpler and less costly. To this end I had laryngeal tubes made in vulcanite, to fit on to an ordinary hypodermic syringe, by means of which the injection can be given thoroughly and satisfactorily. These are simple tubes of equal calibre throughout, and not ending in the form of a spray. They are made in three sizes, the difference being in the size and form of the curve. These tubes can be had from the Argyle Rubber Company, Glasgow.

Method of Administration.—In the administration of the injection I have almost constantly employed the laryngeal mirror, by the aid of which the point of the laryngeal tube of the syringe

can be accurately guided over the epiglottis and into the larynx without coming in contact with the tongue or fauces, thus obviating all risk of retching. With a little practice, however, the tube in the majority of cases can be readily inserted and the injection given without the aid of the mirror, by placing the patient before a good light, having his tongue held in the protruded position and with the mouth widely open. Where the epiglottis is elongated and dependant, however, it will be found necessary to resort to the use of the frontal and laryngeal mirrors, and possibly the specially curved tube. The point of the syringe should go below the level of the vocal cords, and should be in that position before the fluid is injected. If this is not attended to, if the fluid is spread over the cords, the sensation produced is disagreeable, being similar to something having gone the wrong way, and the patient may be compelled to cough. If, however, the nozzle of the syringe be placed below the level of the cords, the fluid is injected directly through the larynx into the trachea, and as much as two drachms in some cases can in this way be injected without the slightest inconvenience to the patient. An ordinary hypodermic syringe holds from 25 to 30 minims, and in using it with the laryngeal tubes spoken of, I repeat the injection two or three times at each sitting, thus giving roughly from a drachm to a drachm and a half. Applying it in this gradual way I never have patients coughing as they did when the same quantity was given at one injection by the large syringe.

Within, at most, one or two minutes of the administration of the injection, the patient experiences a warm sensation in the region of the sternum, which is soon followed by what he usually describes as a comfortable glow all over the chest. He breathes more freely, and where tightness or feeling of constriction across the chest is complained of, this is rapidly relieved by the menthol injection. There is also less inclination to cough. The freedom from the constant tickling cough which follows the injection is in many cases very marked, and more so after the first few days. The patients at the infirmary say that they cough none at all for from four to eight hours after the injection; and if it be given at bed time many, whose sleep was previously much interfered with by the frequently recurring cough, rest the whole night long without once coughing. This is a very important point in the treatment of tubercular laryngitis. Then the expectoration becomes greatly reduced in quantity and much less offensive. In several of the cases the purulent element entirely disappeared, and what little expectoration continued to be discharged resembled the frothy expectoration of simple bronchitis. There was marked increase in weight in most of the patients thus treated, the explanation of which I think is twofold: (*a*) by relief from cough, sleep was less broken and thus more satisfactory, and (*b*) the

organs of digestion were in no way interfered with by the means used to attain this end.

Regarding the action of menthol thus employed, I think we may consider it to be of a triple character. It is, first, a local anæsthetic. On account of this property we have relief from cough, and that in a way greatly to be preferred to the older fashion of administration of opiates by the stomach, with their consequent deleterious effects on alimentation. Secondly, administered internally it is a powerful, though comparatively harmless stimulant. Thirdly, it is an antiseptic, and being of a highly volatile character, it is readily diffused throughout the whole lung. By its use in this fashion we have an antiseptic brought as closely into contact with the affected surface as it is possible; certainly much more completely than is the case where inhalers are employed. The active ingredient used with an inhaler is to a very large extent absorbed on its way to the lungs by the moisture on the surface of the tongue, cheeks, fauces, pharynx, &c. Here we place the antiseptic—menthol rendered more powerful by the addition of creasote—within the trachea, from which it readily enters the larger bronchi, and all air inspired, passing over this, becomes laden with the antiseptic, and is carried onwards to the finer ramifications of the bronchi.—*Glasgow Medical Journal*, Dec. 1889, p. 416.

36.—ON THE TREATMENT OF PNEUMONIA BY VERATRUM VIRIDE AND DIGITALIS.

By H. C. WOOD, M.D., LL.D., of Philadelphia.

Just as in heart disease failing heart-power is a positive indication of the necessity for the use of digitalis, so in acute disease failing heart-power is a reason for its use. In order that you may better understand the principles that govern your employment of the drug in cases of acute heart-failure, let me take the subject of pneumonia. It is unnecessary for me to refer to the symptoms in detail, and I will do so only so far as to enable you to apply the principle to diseases of that class. In order better to understand the use of this drug in pneumonia, it seems to be essential that you should have knowledge of the use of drugs whose effect is the opposite of that of digitalis; I therefore ask your pardon for bringing forward here certain general facts in regard to drugs which are not cardiac stimulants, but are cardiac sedatives. Let us suppose that we have a drug which is a powerful cardiac sedative, which is the opposite of digitalis, and which is also a powerful vascular sedative, causing dilatation of the bloodvessels. Such a drug we find in veratrum viride.

Now we take a case of ordinary pneumonia. We are called to it in the very flush of the disease. We find that the chill has passed by, that the patient has a high fever, that there is a high,

bounding pulse, full and strong. We notice, also, that the lower lobe over the left lung is full of blood. What has brought the flux of blood to that point? There has been everywhere in the lower lobe of that lung a dilatation of capillaries, a vacuum, the effect of a relaxation of pressure. The heart being excited and the arterial pressure being continued, these relaxed, dilated vessels draw the blood into them, the whole lobe becomes full of blood, while the arterial or capillary system everywhere is contracted save only in this lobe over the lung. Under such circumstances digitalis is to be used. In the first place, it depresses and quiets the heart, it reduces the arterial pressure and drives the blood into that territory where resistance to blood entrance is slight. But it does more than this. It builds up the capillaries all through the system. You will remember that the relaxed vessels of the abdomen are of such size that they are capable of holding all the blood in the body. You can put all the blood of a man, after death, in his abdominal vessels, and they will not be over full. Now when, under the influence of a dose of veratrum, the heart has been lowered in power and the whole abdominal cavity has been opened wide, there is then a great suction of blood away from this lung. The blood that fills and chokes up this territory goes off to the abdomen, and you thus get an effect which, in days gone by, our ancestors got by the use of the lancet. You bleed a man, not into a bowl, but you bleed him into his own abdomen; and after the danger has passed by, you have not taken power from the general system. You depress, but you do not exhaust, the patient. Thus, in pneumonia, the period comes when power is needed to support the disease; it does not find the patient wholly exhausted by reason of the bleeding, but by the use of veratrum the functional activity returns. Bear in mind that depression is not exhaustion—that depression is the strong man's safeguard, that exhaustion is the strong man's danger. In pneumonia, therefore, if you have this condition of depression from veratrum early in the attack, you have reduced the congestion and possibly limited the force of the disease. But let the case go along. By and by a time comes when half, or a third, or perhaps the whole of one lung is consolidated. What does that mean? Suppose that we have a pair of lungs each of which is full of capillaries, the cavity between them affording a channel of communication between the right and left sides of the heart. We will say that in the upper part of the left lung there is a channel of communication, which is represented by 100, and in the lower lobe one of the same size, and again one in the right lung. Thus there is normally a cavity or a channel, represented by "400," through which the blood flows from the right to the left side of the heart. There comes an outpouring of plasma; all these capillaries are pressed upon—practically they are obliterated; and if a

whole lung is obliterated, as sometimes happens, there is only half-communication between the right and left sides of the heart. Do you not see that, under these circumstances, the right side of the heart is placed under a perpetual strain, and that the strain increases all the time, from a little failure at this moment to throw back a little blood into the venous system and at the next moment a little failure to throw an increase of blood to the venous system? By and by the pressure is all on the right side of the heart, and the patient dies. Under these circumstances you have the right side of the heart becoming angry, though impotent in its rage, acting spasmodically and in every possible way except the right and proper way. You give a full dose of the digitalis, and continue its use until you have some evidence of its presence. The effect will be that the right side of the heart will begin to beat slowly and with long pauses. There is a driving force behind the blood, which throws it through this narrow channel, fills up that left ventricle and restores the balance of the circulation. You cannot do this with any remedy so well as you can do it with digitalis. It is more powerful than any other, though slow in action. Alcohol does not do this. Alcohol is a stimulant of the general system. It has some power over the heart, but it is a power that is a weakness as compared with the power of digitalis. Therefore, in advanced pneumonia there is no remedy that will take the place of this drug. But bear in mind that you have to give it in sufficient doses to produce an effect. If you are afraid of it, if you give it homœopathically, if you merely rub the back of the patient's neck with the bottle, the disease will hold its own. Here, as in all cases where you are using digitalis fully and freely, you watch the pulse, and will remember that its influence is to determine your treatment. Having given the digitalis, you may find, at eight o'clock in the morning, when you visit the patient, that you have a distinct digitalis pulse; then you will wait until three o'clock, or perhaps until six o'clock, and, if you find that your digitalis pulse is losing, you will throw in your dose of digitalis—your doses being guided always by the pulse.

Digitalis is useful in advanced stages of typhoid fever, when the pulse fails. It is useful in any acute disease when the pulse fails. But remember always that experiments have shown that a very high temperature renders the system less susceptible to the action of digitalis. It is not true that digitalis will not act when the temperature is up. I have over and over again seen it act with great power in cases in which the temperature was 105° . This high temperature simply makes the heart more rebellious; it does not suspend the activity of the digitalis. In acute syncope digitalis is of value. Recollect, however, that it is very slow in its action—that in order to get any effect from it you must give it hypodermically.—*Philadelphia Medical News*, Jan. 18, 1890, p. 57.

37.—THE TREATMENT OF PNEUMONIA BY THE ICE-BAG.

By D. B. LEES, M.D., F.R.C.P., Physician to St. Mary's Hospital.

[Dr. Lees gives the narratives of eighteen cases in which he has adopted this method of treatment. The cases are classified as follows:—A. 5 Cases in which immediate and final arrest of the pyrexial process followed the application of the ice-bag. B. 2 Cases in which immediate arrest of the pyrexial process followed the application of the ice-bag, and a relapse followed its removal. C. 3 Cases in which immediate arrest of the pyrexia followed the use of the ice-bag, a relapse followed its removal, and a second fall occurred when the ice was re-applied. D. 2 Cases in which rapid fall of temperature followed the application of ice, but relapses (apparently due to implications of fresh portions of lung) occurred while the ice was being continuously applied. E. 4 Cases in which no immediate arrest of the pneumonia followed the application of ice, but obvious relief to symptoms resulted. F. 2 Cases in which no very obvious benefit resulted from the use of the ice-bag. In reviewing the 18 cases, Dr. Lees says:]

I may point out, in the first place, that none of them died. Many of the cases, indeed, were comparatively slight, and most of them occurred in children or young adults, in whom the prognosis of lobar pneumonia is usually good, however alarming the symptoms may appear to be. At least two, however (both of lobar pneumonia), would, I think, have certainly died but for the ice-bag, and two more (both of broncho-pneumonia) would almost certainly have done so.

In the great majority of cases remarkable improvement followed the application of the ice. The reduction of temperature which usually occurred at once was often very striking. Instead of the "entire degree" spoken of by Niemeyer as resulting from the use of cold compresses, it frequently amounted to three or four degrees, sometimes even more; on one occasion even to seven degrees. If a subsequent rise occurred it was usually to a decidedly lower level when the ice had been permanently applied, and though when the ice had been removed the subsequent rise often passed the original height, it was again rapidly reduced by a second application. These results were specially observed in children, perhaps partly because their temperature is more easily affected than is that of adults, and partly because the icebag covered a larger proportion of their smaller chest wall. But the improvement was not confined to a mere reduction of temperature. In many cases I noticed a striking arrest in the development of the physical signs, and also of the general symptoms of the disease; and it is particularly to be observed that in some instances this improvement began an entire day or more before the crisis, and was far advanced when that event occurred. This was very remarkable in each of the two

gravest cases. Occasionally, in slight cases, the application of the ice was followed by immediate complete abolition of the disease; but this is obviously open to the fallacy that the crisis may have already arrived, and I therefore lay no stress on this. But, in the two cases of broncho-pneumonia seen in young children in their very earliest stage, it certainly seemed that the disease was promptly cut short. I have never seen any harm follow from the employment of the ice-bag in pneumonia. In one case, indeed, the notes of which have been unfortunately lost—that of a boy of seven years old, with a pneumonia of the right apex, accompanied by a pericardial rub,—so rapid a reduction of temperature followed the use of the ice that the child shivered and was cold, and the house physician felt it necessary to stimulate him. But when I saw him the next morning he was very lively. In a case of pyrexia, however, recently under my care, in which the diagnosis was doubtful until a typhoid rash appeared, and in which an ice-bag was applied to the left lung on the hypothesis that the cause might be a latent pneumonia (the patient being a boy of about six), distinct collapse was produced by the cold applications. The temperature fell to below normal, the boy complained of cold, became bluish, and shivered. The symptoms were easily removed by warmth and brandy. Similar effects may no doubt be produced in pneumonia by the incautious use of ice. They are the more likely to happen the younger the patient, and they are probably more easily produced in cases of broncho-pneumonia, especially in feeble and rickety children, than in cases of true lobar pneumonia. That they need not necessarily occur, however, is manifest from one case of broncho-pneumonia in an infant of only six months and a half. Their occurrence may, I think, almost always be prevented by a sufficiently careful observation of the temperature. I usually direct, at all events in the case of young children, that the temperature shall be taken every hour, and the ice-bag removed when the thermometer indicates 100° , and replaced if a rise to 102° follows. In some cases it is wise to apply warmth to the feet or even to the abdomen at the same time that the ice-bag is applied over the inflamed lung, and the internal administration of brandy may then also be of service. With these precautions it is often possible to use the ice-bag even in debilitated patients without harm. It will be well, however, to draw attention to another point. Dr. Lauder Brunton has suggested to me that the occurrence of collapse may sometimes be due to the direct action of the cold upon the heart, and I have seen him perform an experiment on the excised heart of the frog which illustrates this. A frog is pithed, and the heart rapidly cut out and isolated. It continues to beat regularly. If now it be chilled by the application of ice, the pulsation diminishes until it entirely stops. If the ice be removed and gentle warmth substituted, the pulsations recom-

mence and soon regain their former rate and vigour. This alternation can be repeated two or three times. The experiment clearly shows the depressing influence of cold on the action of the heart, and it is no doubt wise to bear this in mind, and see to it that the ice-bag is not placed over the præcordial region. But I do not advocate the employment of this treatment in pneumonia in very feeble children, in the aged, or in adynamic conditions generally.

My conclusion is, that there is reason to believe that the ice-bag applied over a pneumonic lung has a directly curative influence, that it does not simply reduce the general temperature, but that it distinctly tends to repress the inflammatory process in the lung, with more or less success according to the severity of the case, and the height which the inflammation has already reached. This is true, whatever theory of the causation of the disease be adopted. Coccus or no coccus, the ice-bag benefits an ordinary pneumonia. Whether its action is beneficial in the epidemic and "pythogenic" forms of the malady I cannot say, having no experience of these. I will only add, as confirmatory evidence, that some months ago my colleague, Dr. Angel Money, published a note in one of the medical journals recommending the use of the ice-bag in the pneumonia of children, and that in the *Lancet* of Aug. 10th of this year there is a statement that Dr. Fieandt, a Finnish medical man, "has treated no less than 106 cases of pneumonia with ice, and with the best results. Though ten of the cases were of double pneumonia, only three out of the whole number succumbed, notwithstanding that the epidemic was by no means a slight one." Thus the mortality was only 3 per cent. With this may be contrasted some figures given in the same journal on July 27th of this year, in which it is stated that "in the 1,000 cases of acute lobar pneumonia treated at the Massachusetts General Hospital from 1822 to the present time, there was a mortality of 25 per cent.;" and the authors add that "treatment has not influenced the mortality rate nor the duration of the disease or of its convalescence." If this rate of mortality had prevailed among my eighteen cases I should have lost four of them, and four is precisely the number which, as I have already shown, were almost certainly saved by the ice-bag.—*Lancet*, Nov. 2, 1889, p. 893.

38.—ON THE LOCAL TREATMENT OF DIPHTHERIA.

By J. C. MULHALL, M.D., Professor of Diseases of the Throat in the Beaumont Hospital, St. Louis, U.S.A.

A vast number of agents have been employed in the local treatment of diphtheria with the usual conflicting testimony as to value. It is, however, chiefly concerning the *method used in their application* that I desire to draw attention to a plan which for four years has yielded me gratifying results. It suggested itself to me

that a method which washes out from the throat the perverted secretions is preferable to that which invites a subject too young to expectorate to swallow them, and which permits the larynx to be bathed in them, as must occur in the use of a spray. The instrument with which these requirements can best be met is one which is found in nearly every domicile, namely, the common household syringe. It is a fact not generally known that if the end of such an instrument be introduced into the pharynx or into the back part of the mouth of a young child, that the throat can be boldly flushed and without causing gagging, vomiting, coughing, or strangulation. Reflexly, the tongue immediately retracts, pushes the epiglottis down, making a water-tight glottis, and the child involuntarily ceases to breathe, whilst the pharyngeal irrigation goes on.

The first treatment, like any other first local treatment in a young child, is met with repulses, but even very young children soon learn to appreciate the agreeable effect of clearing the throat of foul and adhesive secretions, and soon quietly submit. With badly trained children, some of whom even repulse the nurse when she smears the nostrils and lips with a soothing ointment, I commonly use the rectal tip, or better a pewter tip, which can be curved so as to be insinuated behind the last molars; but ordinarily I use no tip, simply the rubber hose, which is soft and has the further advantage of providing a larger stream. The physician himself carries out the first treatment as a demonstration to the nurse. The child lies in a crib, one side of which is open; a rubber cloth conducts fluids into a vessel, the child's head is brought to the edge, the face turned toward the vessel, and the flushing is rapidly accomplished. The exertion even of sitting up is avoided. Usually, I direct the washing to be done every hour in the waking state, and never to permit the child to sleep three hours without it. I have used various antiseptics. I prefer a mixture of carbolic acid and compound solution of iodine, properly diluted with warm water, which frequently in addition is saturated with boracic acid. An ordinary water tumbler of fluid is consumed at each irrigation.

This plan is so far imperfect, since it does not provide for disinfection of the post-nasal region, and there are few cases of diphtheria which do not implicate this region, rich in lymphatics and, probably next to the tonsils, most frequently the line of poison march to the system at large. Antisepsis of the nasal cavities can do no harm, whilst it may prevent, or render mild, invasion from the throat. Moreover, since for many reasons we cannot in these cases treat the pharyngeal vault from the mouth, the anterior nasal cavities form ready avenues of approach for the disinfection of this region—and this is an integral part of my plan of continuous antisepsis. Let me repeat, that apart from this

being a channel for the antiseptic treatment of the throat, *I desire to recommend that in every case of diphtheria, whether the nose be affected or not, that the nasal cavities be kept strictly sterile from the first.*

The method of accomplishing this varies. When it is clear that neither the post-nasal nor nasal chambers are attacked, the frequent insufflation of a non-irritating antiseptic powder may be sufficient. When uncertainty exists, or it is apparent that invasion has taken place, the nurse is instructed to wash out the nasal cavities with the same antiseptic solution as that employed in the throat, except that it should be far weaker, so as to irritate the nose as little as possible, and should seldom exceed in amount more than two teaspoonfuls for each nostril. The child, if possible, clears the nose and the antiseptic powder is at once forcibly insufflated. This, as the child lies on its back, gradually trickles into the pharynx and assists in the plan of continuous antiseptics. I commonly use finely powdered sulphur, or iodoform, or salicylic acid highly diluted, with a trifle of cocaine to prevent irritation. The frequency with which the nasal cavities should be irrigated is a matter of individual judgment. Gently and quickly done with agents that are not painful, children readily submit to it—an important matter, for whatever the plan of local treatment be in the adynamic diseases of children, that plan is best which, other things being equal, meets with least resistance.

The rapid dissolution of the membrane is undoubtedly an element of successful local treatment, and I frequently make use of solvent remedies immediately succeeding the cleansing of the diseased surface. I have best succeeded with papoid. There is but one method of local medicinal treatment which can be efficiently pursued in the laryngeal diphtheria of children: that by vapours. At appropriate stages the inhalation of the fumes of slaking lime deserves always to be remembered.

I beg leave to call attention to a modification of the plan of Delthil, which I have hitherto employed in seven cases with a final result of four recoveries and three deaths. A small apartment in the house is selected, the carpet and other belongings removed; the room is thoroughly fumigated with sulphur, and a sheet saturated with a disinfectant spread across the doorway. A gas-stove is introduced which will support two vessels. Into each is poured half a gallon of water. Into each of these a half pint of of pine tar is stirred and a tablespoonful of oil of turpentine. As steam is generated water is occasionally added, so that the half gallon mark is maintained. The amount of tar will be sufficient for the entire treatment, but to each vessel is added every hour a tablespoonful of the oil of turpentine. I have not as yet observed strangury, or the characteristic odour of the drug in the urine. The air from outside should be admitted several times daily. The

Heat from the gas precludes this method in warm weather. In three of my cases, with one death and two recoveries, I was able to demonstrate membrane with the laryngoscope. The four children safely passed the laryngeal crisis with but little cough and no glottic spasm. In a boy aged four, seen with Drs. Holland and Frazer, of St. Louis, who died on the seventeenth day from exhaustion, but the slightest dyspnoea was at any time observable, though total aphonia existed, and I was able to demonstrate to these gentlemen the presence of membrane in the larynx. The steam is generated day and night, and in one of my cases was continually done for six days.—*American Journal of Medical Sciences*, Nov. 1889, p. 462.

39.—ON THE TREATMENT OF ACUTE TONSILLITIS.

By G. F. BOUCSEIN, M.D., of Baltimore, U.S.A.

Local Treatment.—The application of the alkaline salts, as borax and sodium bicarbonate, either in warm solution as a gargle, or in powder, to the inflamed tonsil is strongly recommended by Baker and Oliver. Le Brun uses a gargle composed of boric acid 8 parts, Eau de Pagliari 40 parts, and water 250 parts, and follows this up with the application to the tonsil of iodoform collodion. Morell Mackenzie uses bismuth and opium, or $\frac{1}{8}$ gr. of morphia with $\frac{1}{4}$ gr. of starch, locally; later in the disease he gives inhalations of benzoin, hop or conium, and applies poultices to the outside of the throat. As soon as he finds fluctuation, he makes an opening into the abscess. Von Hoffman wraps a wad of cotton as thick as a little finger around the point of a dressing forceps; dips this in a mixture of equal parts of tincture of iodine and glycerine and with it applies pressure (squeezes) to the tonsil, which is supported by a finger on the outside. He says this method causes some (?) pain, but the relief obtained is so great that patients will ask for a repetition of it. Cocaine has been applied to the tonsil to relieve pain and to diminish the blood-supply. De Haviland Hall sprays the throat with a solution of sodium bicarbonate, 10 grs. to the ounce, and then applies a 20 per cent. solution of cocaine to the tonsil; this is repeated in ten or fifteen minutes if no relief is obtained from the first application. The applications are made from one to three times a day as long as the patient is sick. In view of the toxic qualities of cocaine, I would look upon this treatment as dangerous. The only local treatment that I use, and with good results, consists of poultices to the outside of the throat, inhalations of steam, and incision when there is abscess.

Constitutional Treatment.—The use of the tincture of aconite root, the ammoniated tincture of guaiac, and potassium chlorate with tincture of iron is so well known that it need not be mentioned here. Morell Mackenzie insists that he has better results

from the resin guaiac in powder (lozenge) form than in the tincture form. Sodium salicylate, 15 to 20 grains every three or four hours, is strongly recommended. I use it in rheumatic cases with decided benefit. Boisliniere strongly recommends the sodium benzoate; he reports seventy-five cases in which he simply gave the following mixture:—R. Sodium benzoate ʒj ʒiv.; glycerine, elixir calisaya bark, āā ʒj. M. D. Sig.: ʒj. every hour, or every two hours. Of the 75 cases, 41 reported well in twelve hours, 31 in twenty-four hours, 3 in thirty-six hours; average, twenty hours. In private practice, when cases could be watched more closely, he has seen the white cheesy points disappear in from eight to ten hours. He finds that sodium benzoate undoubtedly controls the febrile elements in the disease; that it may be given with impunity even to children, and that it produces no bad or disagreeable effects. This is, indeed, a brilliant showing, but in my hands the remedy has done no better than any of the others that I have used. I tried it in 10 cases; 3 reported well in two days, 2 in three days, 4 in four days, and 1 in six days. Average, three and one-half days—just about the same results that I get from any other remedy.

I am very sceptical as to the curative or abortive power of any remedy in acute tonsillitis; I believe it to be a specific disease which will run an average course of three and one-half days, in spite of all we can do for it. I can recall two cases in which nothing but poulticing and steam inhalations was done, and both recovered fully by the fourth day. In one case my prescription had not been filled; in the other, a servant girl, the medicine was thrown regularly in tablespoonful doses into the water closet. Remembering this, I, in my own case (last winter), did nothing but make myself as comfortable as possible, and on the fourth day I was well.—*American Journal of Med. Sciences*, Oct. 1889, p. 358.

40.—ON SOME AFFECTIONS OF THE BURSA PHARYNGEA.

By ADOLF BRONNER, M.D., Surgeon to the Bradford
Eye and Ear Hospital.

The affections of the pharyngeal tonsil play a very important part in connexion with the treatment of the diseases of the nose, ear, and throat. It was Meyer of Copenhagen who first drew attention to the frequent occurrence and great importance of what he called “adenoid vegetations of the naso-pharynx, or post-nasal growths.” These growths are, as Trautmann and others have proved, simply a form of chronic hypertrophy of the pharyngeal tonsil or adenoid tissue situated at the vault of the naso-pharynx. Meyer also recognised the important relation between post-nasal growths and diseases of the middle ear. Of 198 cases of diseases of the middle ear in children under fifteen years old which I saw

in 1887 and 1888, post nasal growths were found in 101. Of 152 cases of post-nasal growths, the middle ear was affected in 125 cases, or over 85 per cent. The growths are also of great importance in connexion with the development and diseases of the chest. Patients with well marked growths have in most cases a narrow and undeveloped chest, and often suffer from bronchitis and affections of the lungs. There is another very common affection of the pharyngeal tonsil, "catarrh of the bursa pharyngea," to which Professor Tornwaldt first drew attention in 1885. Tornwaldt shows that in many cases of so-called post-nasal catarrh, if we carefully examine the pharyngeal tonsil, we see near the middle line a greyish crust of dry mucus. On removing this, we find attached to its upper surface a plug of tough mucus which comes out of one or more small apertures in the middle line of the tonsil. On passing a probe through one of these apertures we find a large cavity which extends backwards and forwards, often to the extent of one or two centimetres. Often the middle of the tonsil bulges forwards, and on pressing it with a probe we can distinctly see mucus escaping from some small aperture. These latter cases have been described as "cyst of the pharyngeal tonsil." Mucus, dry and similar in character, is often found on the posterior wall of the pharynx. Tornwaldt calls this cavity the "bursa pharyngea." He thinks that this bursa is a congenital structure, and developed in most persons, but readily recognised only when inflamed. Schwabach, G. Killian, and Suchanek have lately proved that there is no such thing as congenital bursa pharyngea, and that this so-called bursa is formed by pathological changes which take place in the fissure, which normally divides the pharyngeal tonsil from before backwards. The sides of this fissure become inflamed, and then often adhere together, thus forming, as it were, a covered passage which presents all the features of a bursa. Schwabach suggests calling the fissure the "recessus medius pharyngeus." Even if these assertions be true, the work of Tornwaldt does not, therefore, lose any of its great importance from a practical point of view, and deserves much more attention than has hitherto been given to it. The great importance of the catarrh of the bursa pharyngea is its intimate relation to the affections of the neighbouring parts—the pharynx, nares, Eustachian tube, and middle ear. The constant secretion of mucus from the diseased bursa sets up inflammation of the surrounding tissues, and this inflammation can spread to the nose or throat. Or the mucus, which is often of an offensive nature, drops into the nose or throat, and sets up inflammation there.

We thus find that many cases of pharyngitis in all its varieties are caused and kept up by the catarrh of the bursa. The complex of distressing symptoms, usually called relaxed throat, or post-nasal catarrh, so very common in the north of England, is in many cases

caused by the mucus which is constantly dropping from the diseased bursa. These are the so-called incurable cases in which gargling, painting, and burning with the galvano-cautery are of no use whatever. Chronic hypertrophic rhinitis is often caused and kept up by the catarrh of the bursa. In these cases even the most barbarous treatment of the nares must naturally fail to effect a cure. I will record some typical cases of catarrh of the bursa pharyngea which have come under my notice.

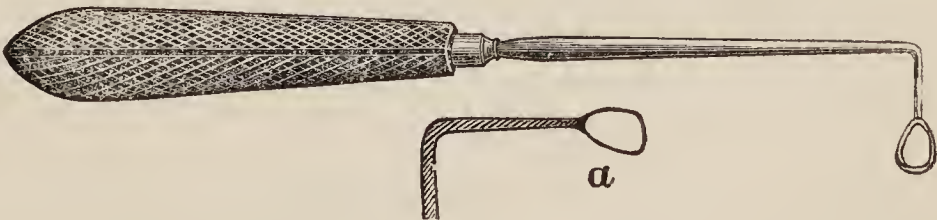
Case 1.—Miss K——, forty, saw me in February, 1888. For many years she has been troubled with an irritating, dry cough every morning. She feels as though there were a hair in the throat. After the coughing, she usually expectorates quantities of dry mucus, which is of an offensive nature. She often suffers from “cold in the nose and head.” On examination I found the pharynx congested and several large granulations; the posterior wall was of a peculiar pale, shiny colour, and looked as if it were glazed over, and was partly covered by several crusts of yellow mucus; the lower turbinated bones and septum were swollen; the pharyngeal tonsil was enlarged, and partly covered by a crust of mucus. I removed the crust. A small slit was now visible near the middle of the tonsil. I introduced a probe, and found a cavity, which extended backwards and forwards for about one centimetre and a half. The bursa was touched freely with chromic acid several times. In three weeks the cavity had disappeared, as had also the cough and crusts of mucus in the pharynx. The nose has been perfectly free ever since.

Case 2.—Miss M——, aged twenty-eight, governess, consulted me in May, 1888. For some months she had complained of severe pain in the forehead, worse in the mornings, and of, as she thinks, loss of memory. She cannot work as well as formerly, feels tired and weary, and takes no interest in her duties. In fact, she feels so miserable that she intends giving up her situation as governess. She thinks that these symptoms are in some connection with the eyes, and wants glasses. The vision and accommodation of the eyes were perfectly normal, so that I had to look for the origin of the symptoms elsewhere. I found that she nearly always had a “cold in the nose,” and suffered from a dry cough in the morning. The lower turbinated bones were much swollen, and there was well-marked granular pharyngitis. The pharyngeal tonsil seemed enlarged. On careful examination I found in the middle of the tonsil a round elastic swelling of the size of a large pea. On piercing it with a pointed probe, a quantity of offensive mucus escaped. The patient felt much relief for several days, but the old symptoms soon returned. In July I removed the whole of the bursa with Trautmann’s sharp spoon. In September the patient came again. She said that she felt her old self now, and was perfectly happy and contented. The cough, headache, and all other symptoms had com-

pletely disappeared. This is a typical case of "aproxexia," so ably described by Professor Güye, and so very common in children who suffer from post-nasal growths.

Case 3.—Mr. S——, aged thirty, saw me in June, 1888, for deafness. For five years he has had frequent attacks of deafness of the left ear. He noticed that these attacks were always accompanied by swelling of the left nostril and by a dry cough. On examination I found the left lower turbinated bone swollen. There was well-marked granular pharyngitis. Numerous scars on the posterior wall of the pharynx were the sole remains of a recent treatment with the galvano-cautery. Near the middle of the pharyngeal tonsil there was an accumulation of dry mucus. I removed this and found two small apertures, which opened into a fairly large cavity. By the use of the Eustachian catheter the hearing was restored. The bursa was cauterised with chromic acid seven times. I saw the patient again in November last. The deafness has not returned, and he has lost the cough altogether.

Case 4.—Rev. J—— saw me in January, 1888. For many years he has suffered from an irritating dry cough, which was always the worst in the morning. After coughing he usually expectorated quantities of tough mucus. He also suffers from vomitus matutinus. For some months he has been subject to frequent attacks of slight hoarseness and weakness of voice. Several times his voice gave way in the middle of the sermon. He has tried all kinds of remedies: nasal douches, galvano-cautery, &c. He is also subject to attacks of slight deafness. I found the pharyngeal tonsil enlarged and covered with several crusts of mucus. These were removed, and two small slits were then visible, which opened into a cavity. I scraped the bursa with a curette, twice. In February the cough had quite gone, and since April the patient has never had cause to complain of hoarseness, weakness of voice, deafness, or vomitus matutinus.



As regards treatment, this can of course only be local. We can either cauterise the walls of the bursa with chromic acid, nitrate of silver, or with the galvano-cautery, or we can remove the whole of the bursa with a sharp spoon or curette. I formerly used Trautmann's sharp spoon or Kartman's curette, but found that they were too large, and obscured the field of operation. I

have had a curette made by Down Bros. similar in shape to Kartman's, but much smaller. With it you can, under guidance of the post-nasal mirror, readily remove the bursa or cyst. The end α (natural size) is passed through the mouth behind the soft palate, pressed well against the pharyngeal tonsil, and drawn from one side to the other several times. In nervous patients I should recommend the use of some caustic; chromic acid fused on to a platinum probe seems to me to be the best. In most cases, however, the surgical treatment is certainly the simplest, easiest, and quickest way of getting rid of the bursa. The pharynx and nasopharynx should be painted with cocaine, 20 per cent. solution, several times, a few minutes before examination, and of course also before the operation. I also use the cocaine spray. In some cases we have to pull forward the soft palate in order to get a full view of the naso-pharynx. I prefer Voltolini's retractor to those suggested by Krause, Cresswell Baber, and others, which are fixed to the upper jaw. A small laryngeal mirror suffices in most cases, or one can use Fraenkel's or Mackenzie's movable mirror, or the large concave mirror as suggested by Professor Wahl.—*Lancet*, Jan. 11, 1890, p. 70.

DISEASES OF THE ORGANS OF DIGESTION.

41.—ON THE CHEMICAL EXAMINATION OF THE STOMACH CONTENTS IN DYSPEPSIA.

By L. WOLFF, M.D., Physician, German Hospital, Philadelphia;
Demonstrator of Chemistry in the Jefferson Medical College.

The chemical changes which take place in the stomach under abnormal conditions are the variable composition of the gastric secretion, owing to the increased, diminished, or totally absent quantity of hydrochloric acid, for so far no absence of pepsin has been established in any of the gastric secretions yet examined, and all of them have answered the physiological digestive test if admixed with hydrochloric acid.

The diagnosis of dyspepsia, as practised to-day, is the consequence of, and was developed from lavage of the stomach, as introduced by Kussmaul about twenty years ago, and the close investigation of the matter thus washed out. Previously the contents of the stomach and its secretions were judged principally from the vomited matter, but as this is a pathological product, it cannot give any correct idea of the possible functional ability of this organ. The ingesta, besides largely diluting the gastric secretion, make its chemical examination very uncertain and unreliable. The withdrawal of the gastric secretion when its digestive power is the greatest, is necessary at certain periods

which have been ascertained by experiment and observation. This has to be done also at a time when the presence of ingested matter shall not render the withdrawal impossible. Without dwelling on the different experiments to ascertain this period, it is now generally accepted that a special meal should be given, after which, at a certain time, the gastric secretions are withdrawn. The early meal generally employed for this purpose is known as the trial breakfast, which consists of a few pieces, altogether about two to three ounces, of bread or bun and a glass of water or a cup of tea. Jaworsky and Gluzinski, relying on the observation that a soft-boiled egg disappears from the normal stomach in one and a half hours, use this instead of the above-mentioned trial breakfast. At times, however, and especially under pathological conditions, it is found that the egg is not peptonized in that period, and then, by clogging the tube and the now proven union of the free hydrochloric acid with the albuminoids, the withdrawal is rendered difficult and the results inaccurate. To obtain the gastric juice from four to five hours after a more copious "trial dinner" has no advantage, and the "trial breakfast," after all, is the one relied upon.

Ewald and Boas express the gastric juice by epigastric pressure, about one hour after the trial breakfast, when it is known that in the normal state it is strongly acid from hydrochloric acid, the lactic acid having disappeared, and only continuing to be present in abnormal conditions. To express the gastric juice has disadvantages which may be readily avoided by the use of a suction apparatus. Germain Sée recommends a Potain aspirator for this purpose, partial exhaustion only being made, but an ordinary syringe answers the purpose very well, as the quantity for chemical analysis need only be very small, from one to two drachms sufficing to that end. The tube employed for withdrawal of gastric juice is a small-sized, ordinary stomach-tube, having two fenestræ, and, in the cases of infants and children, I have frequently used simply a small, soft-rubber catheter. After the introduction of the tube in the usual manner, the fluid is withdrawn by slowly drawing out the piston of the syringe. A sufficient quantity is recognised by a small glass-tube connection in the rubber one; the tube is then carefully withdrawn and emptied into a small glass vessel. The liquid so obtained is next filtered and tested, to ascertain if acid or not, with neutral litmus paper. When the acidity is thus established, the amount of acidity is determined by acidimetry with a decinormal solution of sodium hydrate, litmus or phenolphthalein being used as indicator. Five cubic centimetres of the filtered gastric juice are neutralized with decinormal solution of soda, as stated above, and the total acidity is expressed by multiplying the result by twenty, thus giving the number of cubic centimetres of one-tenth normal

soda solution necessary to neutralize one hundred cubic centimetres of gastric juice.

After this is done, the chemical character of the acid is investigated. To this end the lactic acid test of Uffelmann may be applied. This consists of a two per cent. solution of carbolic acid to which a few drops of neutral ferric chloride are added, sufficient to produce a steel-blue colour. When this is added to some of the filtered gastric juice it will be decolorized if the acid is pure hydrochloric; if lactic acid is present together with hydrochloric, the colour will be changed to a yellowish tint, and if the lactic acid is in excess, it may even assume a reddish-yellow; whereas, in the absence of hydrochloric acid, it will have a more greenish tint. Though this seems to answer the purpose, it only shows the presence of lactic acid, without giving a distinct idea as to the presence of hydrochloric acid. For the purpose of showing the latter, Laborde proposed the use of methyl-violet; a watery solution of this is promptly changed by HCl to a greenish-blue colour, but is not affected by lactic nor the fatty acids. It has, however, the disadvantage of being not sufficiently delicate, and the colour-changes with weak acidulous fluids are not distinct enough to judge of small amounts of HCl. To test with it, some of the filtered gastric juice is placed in a small glass vessel (watch-crystal) placed upon white paper, and the test solution is allowed to drop on the side of the vessel and commingle with the fluid, when the change of colour can be plainly observed against the white background. In a series of experiments to ascertain the limit of delicacy of these tests for HCl, I have found that the methyl-violet could detect in this manner 1 part of the HCl in 2,500 parts of water.

The next test, superior in delicacy, is a saturated aqueous solution of tropeolin; this yellow solution, when applied for the examination of gastric juice in the manner described for methyl-violet, will change to a beautiful red, or brownish-red with HCl, is but a little darkened by lactic acid, and very slightly so by the fatty acids. I have ascertained its limit of detection of HCl to be 1 to 3,500, while 1 to 500 is the greatest dilution of lactic acid that will darken its colour, and it is not affected by 1 to 100 dilution of acetic acid. A more recently introduced reagent is the phloroglucin-vanillin. Germain-Sée has made extensive experiments with this, and while it does not indicate organic acids, he claims for it a delicacy sufficient to indicate as little as 1 to 20,000 of HCl—a claim, however, which I have not been able to substantiate entirely from my own experiments.

It was found by Wiesner that if a pine stick was dipped into a phloroglucin solution, and was then touched with strong HCl, it turned a dark-red colour. This reaction is caused by the presence of vanillin in the pine wood; and, therefore, this was

substituted for it. The test is composed as follows: 2 grammes phloroglucin and 1 gramme vanillin dissolved in 30 grammes absolute alcohol. This yellowish solution gives at once with a stronger mineral acid a dark-red colour with deposition of red crystals. To apply this test to weak acid solutions, such as the gastric juice, the fluid must be evaporated at a moderate heat, not reaching the boiling point of water, to drive off the water and leave the HCl of sufficient strength to act on the reagent. To this end a few drops of the test are mixed with a similar quantity of the filtered secretion, and then slowly evaporated to dryness. If HCl is present the dry residue assumes a red colour, or if present in very small quantity may show distinct red outlines only. In my hands this test, certainly a very valuable and delicate one, failed to indicate more than 1 part HCl in 10,000 parts.

The red Congo paper, as proposed by Prof. Riegel, is a most delicate reagent, and easy of application. It is readily turned of a bright greenish-blue colour by HCl, but is also affected by lactic acid, which changes its colour to a dark dirty-blue; and acetic acid will darken it with a bluish tinge. With this reagent, as obtained from Merck in Darmstadt, I was able to detect as little as 1 part of HCl in 20,000 parts of water; and while one part of acetic acid to 3,000 water gave a slight change in colour with bluish edges, 1 of this to 5,000 did not affect it in any manner; 1 part of lactic acid in 5,000 water was indicated by it in traces, but 1 to 6,000 failed to elicit a change in its colour.

It is thus seen that the latter is perhaps the most delicate reagent we have, not alone for HCl, but as an indicator of general acidity, and that when it fails to indicate the latter a total acidity may be fairly claimed. When it indicates acidity, the application of the other tests may become necessary, not alone to ascertain the character of the acidity, but to approximate the degree to which HCl may be present in cases of subacidity. The gradation and limits of these reagents, as pointed out by me, may be readily utilised to this end by dilution of the secretion up to the point where either of the above tests fail, and computing the HCl by the amount of the dilution.

The excess, normal presence, diminution, or absence of HCl being thus established, the digestive power of the gastric juice is now ascertained by the physiological test. To this end a small piece of coagulated egg albumen of about 7 mm. diameter and 1 mm. thickness is digested at the temperature of the body, and the comparative time necessary for its solution noted. With normal secretion this should be complete in from one to one and a half hours, whereas under abnormal conditions a much longer period and the addition of HCl may be required. — *Philadelphia Medical News*, Sept. 21, 1889, p. 310.

42.—ON THE CLINICAL ASPECTS OF MOVABLE KIDNEY.

By DAVID DRUMMOND, M.A., M.D., Physician to the Royal Infirmary, Newcastle-on-Tyne.

[Dr. Drummond's paper opens with the narratives of thirty-one cases of the condition under discussion. We reproduce here only the writer's comments upon them.]

In all the cases, with the exception of two, symptoms more or less directly referable to the kidneys were present. The most characteristic symptom was pain, variously described as aching, dragging, and burning, and usually this was aggravated by exertion and relieved by rest. In all but one the pain was complained of on the side on which there was the greatest degree of renal mobility. The hypochondrium was the region most frequently affected, though the pain was often described as travelling back into the posterior lumbar region, and again, up to the shoulder-blade or down towards the ovary. Not unfrequently it passed across the lower part of the epigastric region from side to side. Dyspeptic symptoms were prominent in nineteen cases, and it is to be remarked that the group of symptoms of this description in the various cases resembled one another somewhat closely; as a rule there was apparent a sense of local or general abdominal tenderness, with more or less gaseous distension, pain, constipation, and loss of appetite. The pain and general dyspeptic discomfort were at their height usually from one to three or four hours after food. In ten out of the nineteen cases in which there was dyspepsia, mucus was observed from time to time in the stools. This was occasionally very noticeable, and formed a striking feature of some of the cases. I am inclined to think that this form of enteric catarrh will be found on careful inquiry to be a much more frequent accompaniment of movable kidney than is generally supposed, and to it (gastro-enteric catarrh) may, I believe, be ascribed the dyspeptic symptoms of the malady. The bowels were usually constipated, as is apt to be the case in the nervous form of intestinal mucous catarrh, and the evacuations were often light coloured, and were largely made up of undigested food, with flaky mucus. With the foregoing symptoms, emaciation, general debility, and a tendency to hypochondriasis and depression were observed in a good many instances. Twenty-two out of the thirty-one patients referred to were exceedingly nervous, and might very properly be described as decided neurotics; and it is noteworthy that with rare exceptions these were the cases in which dyspeptic symptoms were most marked. Fifteen gave the history of a highly nervous temperament from earliest recollection; whilst in seven the origin of the neurotic state was supposed to be contemporaneous with

the development of the symptoms belonging to the kidney displacement. Six could scarcely be classified as neurotics, and in the case of three no information on the point was obtained. So often is a marked nervous habit to be met with in cases of movable kidney with symptoms that I have been led to ask myself the question, would the symptoms arise were it not for the neurotic tendency, even with a pronounced degree of ectopia? It must, I think, be admitted that in the great majority of the cases they would not. But that the kidney condition determines the region and distribution of the disturbance there can be no doubt, and, further, it would seem that in some cases at least it is the cause of the neurotic temperament. A large proportion of the cases suffered from migraine. In three cases hæmaturia was observed, and in three others albuminuria. One patient was the subject of confirmed kidney disease, which on post-mortem examination proved to be tubal nephritis—the large mottled variety. In another instance Bright's disease was more than suspected. In none of my cases could I satisfy myself that occlusion (by twisting) of the ureter or renal artery occurred, accidents that have been described by writers as giving rise to temporary diminution of urine, and at times suppression, with pain, which in the case of the former would be attended by enlargement of the tumour (hydro-nephrosis), but not in the case of the latter. The possibility of such accidents ought not to be forgotten, though I am inclined to think that they are rarer than some have supposed. I have met with marked exacerbations of pain with diminished flow of concentrated urine, but I have not felt justified in ascribing the attacks to torsion of the artery, and in no instance was it attended by temporary enlargement of the movable organ.

A word on the method of examining a patient for floating kidney. The plan usually adopted—viz., of palpating the hypochondriac and lumbar regions by simply pressing the hand down towards the kidney region—will often fail to detect a mobility of considerable degree. It is well to stand on the right side of the patient, who should be examined lying on the back with the abdominal walls as much relaxed as possible. The right side can then be explored by gently but firmly pressing the left hand behind the quadratus lumborum, beneath the twelfth rib, whilst the right hand is laid on the side and front of the abdomen beneath the arch of the ribs. The patient is then directed to draw a long breath quietly, and then at once to expire without using any force. Towards the end of the inspiration the right hand is pressed down towards the left, gently at first, but firmly when expiration commences. The result of this manœuvre is that the kidney, which has been brought down with a sweep by the diaphragm, can readily be caught between the hands and retained for a few moments. Or should the displacement of the organ be but

slight, its lower end can be felt by the right hand at the moment when the abdominal muscles are relaxed at the beginning of expiration. Of course, in exaggerated cases there is no necessity to practise the plan I have described. But in stout people, or in less striking examples, it will be found of great use in searching for the condition. The left kidney may also be explored from the right side of the patient.

Of the thirty-one patients whose cases have been referred to, twenty-five were women, four men, and two children, both girls. Of the women, twenty had been married, and of these sixteen had borne children.

In inquiring the age at which cases of movable kidney are most common, we have to consider the time of life that favours the incidence and operation of the several causes, as well as that at which the *neurotic habit*, so indissolubly connected with the most striking symptoms of the condition, is most frequently met. For it cannot be denied that up to the present the displacement, in ordinary cases, has in great measure escaped the notice of morbid anatomists, and that statistics based on post-mortem-room observation can only be misleading. It is, therefore, well to confine our attention to the cases in which the presence of symptoms, more or less definite, has led to the discovery. Personally, I have repeatedly demonstrated the mobility of the organ in the post-mortem room, but I am unable to state even approximately how often it occurs, though in future I intend to note the fact, and hope to aid in the elucidation of the question. This much I will say, that in almost every instance in which the kidney has been found to be freely movable, the other abdominal organs have been correspondingly loose in their attachments—the spleen, liver, cæcum, stomach, &c. More than once a distinct meso-nephron was present, but much more often the peritoneal covering was simply loose, so that the organ could be easily placed in various novel positions. Indeed, at times it had dragged the relaxed peritoneum so far from the abdominal wall as to bring into close conjunction the upper and lower layers, so as to form a false meso-nephron. The dilatation of the stomach described by Müller Warnek has not come under my observation, nor have I been able to satisfy myself that pressure can be exercised to such a degree by the movable organ upon the duodenum as to lead, as was supposed by Bartels, to obstruction of the passage of food from the stomach.

It would appear to me that in the great majority of cases of movable kidney a more or less relaxed condition of peritoneal attachment is congenital, but that certain causes are at work that determine the actual condition as a pathological entity there can be no doubt. Great stress has been laid by writers upon repeated pregnancies. In other cases emaciation, with local disappearance

of adipose tissue surrounding the kidney, has been assumed to favour it. Again, it has been ascribed to accidents, such as severe falls and so forth. In at least fifteen of my cases pregnancy must be discarded as a cause, for nine women had never borne children, and these, with four men and two children, make up nearly half the total number. Of the sixteen mothers, nine had three or less than that number of children, whilst only five could be said to have had large families. Turning, then, to the question of loss of flesh, in eleven cases decided emaciation was observed; in seventeen, it was by no means apparent, indeed, in the majority it was denied; whilst in three the fact was not ascertained. It is, of course, conceivable that a marked loss of the fat surrounding the kidney would tend to deprive it of a considerable amount of support. But the fact must not be lost sight of that in a good many cases the emaciation has succeeded, and has apparently been consequent on, the kidney displacement, and that in a large percentage of cases the right kidney was affected when the left was not. In my own series both kidneys were discovered to be movable in fifteen instances, the right alone in fourteen, and the left alone in two.

In considering the pathology of movable kidney, I do not think sufficient importance has been attached by writers to the effect of the descending diaphragm during forced inspiration. I believe that in the great majority of cases the loosening of the kidney attachments, already more or less lax congenitally, is the result of pressure exerted on the organ by that great inspiratory muscle. In this connexion it is worthy of note that the condition was traced in four of my cases to violent efforts in vomiting, and in one to severe asthmatic attacks.

The treatment of the symptoms of floating kidney is in a great measure the treatment of dyspepsia and of functional neuroses generally. The application of a pad over the displaced organ, with the object of confining it in its place (employed repeatedly by my patients) very often fails to relieve. In some cases it cannot be borne; in others it is without effect, whilst in others it relieves apparently by the pressure it exerts on the part, independently of its restraining influence; yet it must be admitted that in some few it seems almost to be curative. When the pain is severe, rest in the recumbent position is practically essential, though absolute repose will not always afford relief, and some patients insist that they are better when moving about. Careful diet and attention to the action of the bowels are very important. As a rule arsenic, strychnia, cod-liver oil, and in anæmic people, iron, are of value; whilst massage and faradism have been of immense service in some of my cases. In two instances the right kidney was stitched (nephrorrhaphy) in its place. In the first case the result was not satisfactory; for though the patient improved for a while after

the operation, he soon relapsed. In the latter the improvement was more striking and more lasting, but she also suffered a relapse. It is worthy of note that her most trying symptoms arose after the discovery of the tumour by herself, and it is just possible that the mental effect attending the disappearance of the floating body, which occasioned her untold worry, might be accountable for the alleviation of her symptoms. In another case (not one of my series) the details of which were supplied to me by a friend, excision of the movable kidney was practised without any relief. One of the most striking facts in connexion with the subject is, that notwithstanding the continued mobility of the kidney the symptoms will disappear from time to time, remaining away, it may be, for weeks or months, to return again when the patient's general health, and particularly his nervous system, has for some reason become impaired.—*Lancet*, Jan. 18, 1890, p. 120.

43.—ON GLYCOSURIA AND ANGINA PECTORIS.

By WILLIAM M. ORD, M.D., F.R.C.P., Physician to, and Lecturer on Medicine at, St. Thomas's Hospital, London.

In a paper published in St. Thomas's Hospital Reports I noted several cases in which glycosuria or, as it has been called, diabetes, preceded, or was preceded by, angina pectoris, and subsequently co-existed with it. Several cases of the same kind have since come under my knowledge. I will venture to detail one which was under my observation for some time.

A gentleman, of the age of 62, consulted me in June, 1886, complaining, in the first place, of a cough which had been distressing him for six weeks. The cough did not appear to be due to any affections of the lungs, heart, or stomach, but rather was attributable to a deep dusky congestion of the throat, such as one often sees in gouty people. The patient was a man of singular refinement and delicacy, and at the same time of much acute sensitiveness and irritability. He had lost flesh, complained of low spirits, of much unfounded anxieties, and of serious want of sleep. His urine was at that time of specific gravity 1020, and while containing no albumen, gave a very decided reaction of sugar. I prescribed for him a careful diet, bromide of ammonium and codeia, but did not see him again till some weeks later, when he was the subject of a very sharp attack of quinsy—a typical gouty quinsy. During this attack the sugar disappeared entirely from the urine, but albumen made its appearance. After the attack the sugar returned, but in smaller quantity, and for a time his health improved; but in June, 1887, after an absence of several months, he came to me with new symptoms. They were, in the first place, symptoms of angina pectoris. He lived in a suburb from which a train took him to the city. To catch the train it was necessary

that he should walk up a short acclivity beginning at his garden gate. Starting from home, shortly after breakfast, he was obliged, after walking a few yards, to stop and hold on by the palings, feeling, as he said, as if he were ready to die by reason of a strong sense of constriction of the chest, which seemed to be about to stop him altogether from breathing. After holding on for a few minutes he would recover his breath, and would generally be able to walk to the station. Sometimes, however, a second attack would intervene. At this time, although he had gained flesh, his general condition was a good deal worse than it had been a year before. His heart was now decidedly enlarged, and the enlargement appeared to be due chiefly to dilatation on both sides. The heart sounds were weak and obscure, and although I could detect no definite murmur I came to the conclusion that there was not only impaired nutrition of the muscular wall, but commencing valve disease. He was still suffering from much irritability and insomnia. The urine was now of specific gravity 1028, contained a little albumen, and gave a strong reaction of sugar. Rest, diet, and the use of strophanthus, in addition to codeia, brought about some improvement for a time. But three months later I was called, in great haste, to see him in consultation with his usual medical adviser. I found now that he had constantly recurring attacks of angina, by day and by night, altogether independent of muscular exertion. A careful examination led to the establishment of the diagnosis of sharp gastric catarrh. He had a foul tongue, thirst, frontal headache, nausea, occasional vomiting, and loss of appetite. The urine contained still a little albumen and much sugar. I advised careful evacuation of the bowels and the use of sedatives for the stomach in the form of carbonate of bismuth, with bicarbonate of potash and tincture of belladonna. But before these remedies could have time to operate, his sufferings increased to a terrible degree. His attacks of angina were almost continuous, and he had to sit night and day with his head supported on a rest in front of him. Under these circumstances, many remedies were used by those in immediate charge of him. Nitro-glycerine and nitrite of amyl were of some use. For the insomnia various hypnotic remedies were applied. But it appeared to me that they were only of temporary value, and that the essential method of treatment was to overcome the gastric catarrh. It seemed that this definitely established condition was the abiding cause of the angina, so we resolutely attacked it with various remedies until it yielded. When it passed away, the angina gradually diminished, and the patient was able to leave his house and go to Margate, where he remained for some time in comparative comfort—until one day, moving suddenly from the breakfast table, he was seized with a fatal attack of angina. During all this illness, his urine was carefully examined. There were, indeed, difficulties in the

way of estimating the quantity of urine passed daily; but the quantity of sugar in the specimens examined was always greater than it had been before.

I could cite other cases, but will only say that the same kind of association has been more than once observed. Now, if we carefully consider what is called angina pectoris, I think we must admit that it is no more an essential disease than glycosuria; and, as I have seen it, and thought over it, I recognise in it varieties of form and causation which run in curiously parallel lines with those of glycosuria. Every one, no doubt, must recognise the typical form of angina pectoris wherein degeneration of the heart muscle plays one part and arterial stress another; and everybody also will, I think, be ready to admit that disorder of innervation plays an important part in disturbing the balance between the heart and the arteries. Not improbably, indeed, this may be the first and common factor. In such a case as I have just described it looks very much as though disordered innervation was the starting point of the whole mischief.

If it were so, the position of the glycosuria has to be fixed. It might have been also a mark of disordered innervation. It certainly preceded heart and stomach disorder; and after being a herald of them, increased as they began and developed. But if the glycosuria were of hepatic origin, it seems to be necessary to admit that while there was undoubted tension of peripheral arteries in the limbs and head and neck, there must have been dilatation of the hepatic artery, or indeed some defect of digestion or of assimilation. It is impossible to eliminate entirely the last two causes, or to estimate their possible value. But comparing this with other cases, I cannot help cogitating in what ways disturbance of the arterial circulation of the liver may possibly occur in angina.

It is I think quite certain that excitements of the central nervous system may produce at one and the same time arterial relaxation in one part of the body and arterial contraction in another. One often sees people who, under one or the other form of perturbing influence, become flushed and hot in the face and cold in the extremities, or hot in the extremities and cold in the face.

In such a case as that which I have quoted we might on the one hand recognise a perturbing nervous influence as a cause of peripheral arterial tension, of defective nutrition of the heart, of glycosuria, and probably of the faucial and gastric affection.

There is much reason in fact to look upon this as the best explanation of the whole array of phenomena. But in a preponderance of the cases presenting glycosuria together with symptoms of angina, the evidence of primary neurotic disturbance has not been so strong. In thinking over these I have been inclined to consider how far it might be possible that excessive tension of the

arteries in one part of the body might be, so to speak, balanced by excessive blood pressure in arteries or other parts of the body. Surely this is what we, in a way, invoke when we attribute an internal inflammation to a chill of the external surface, or when we apply an irritant to the surface of the body in order to reduce inflammation in an internal organ. In addition we must not forget the reflex influence of one organ on another. Stomach disorder may have had its share in the production of the glycosuria, as it certainly had, in the case quoted, its share in the intensification of the angina. As one studies angina, one certainly finds that many apparently accessory conditions have to be dealt with in its treatment; notably for one, constipation.

All constipation is certainly attended with increase of arterial tension. In the treatment of angina I have found practically that the maintenance of a daily action of the bowels has been a need of the first importance, just as I have found that the avoidance of over-filling of the stomach, often resorted to where the patient is weak and failing, is imperatively necessary.—*British Medical Journal*, Nov. 2, 1889, p. 966.

44.—THE RELATION OF DIET TO URIC-ACID FORMATION.

By WILLIAM H. DRAPER, M.D., New York.

Many years ago my attention was called to the fact that gouty and lithæmic subjects exhibited a striking inability to digest the carbohydrates. I observed this in the victims of acquired as well as of hereditary gout, but especially in the latter, and often at a very early age. This inability to convert the carbohydrates I found manifested itself primarily in an acid dyspepsia, with increased acidity of the urine, with showers of uric-acid crystals or deposits of urates; and, secondarily, in the nervous derangements and the catarrhal lesions of the skin and mucous membranes which characterize the lithæmic state. Closer observation led me to the conclusion that the essential, and often the only successful, means of combating these derangements was the withdrawal, more or less complete, of the sugars and starches from the diet.

I am aware that the necessity for restricting the use of the carbohydrates in the dietary of gouty and lithæmic persons is now pretty generally recognized; but I think that the opinion still largely prevails that animal foods are not only responsible for the origin of gout and lithæmia but that the rational treatment of these disorders necessarily involves the more or less strict prohibition of these foods. So general, indeed, is the prejudice against the use of nitrogenous articles of diet in the treatment of gout—a prejudice founded mainly upon the teachings of the English authorities upon this disease—that it is only within a comparatively recent period that there has been any question about its correct-

ness. Some of the later authorities, however, both German and English, recognise the baneful effects of the carbohydrates in the diet of gouty subjects, and strongly urge a diet composed largely of animal foods. My own experience leads me to believe that in aggravated cases of the morbid conditions under consideration a diet as rigidly exclusive of the carbohydrates as that required in glycosuria is necessary to control uric-acid formation and its consequences. The failure to recognise this fact often interferes very seriously, in my judgment, with success in the management of severe cases of this nature, for there is no therapeutic measure which, so far as I know, can compare with a properly regulated diet in controlling and preventing the miseries which are incident to this special derangement of nutrition.

Even those who are inclined to acknowledge the general truth of this statement fail sometimes to appreciate the necessity of attention to details in carrying out the principle involved in what may be called the anti-lithæmic diet. It is only by careful observation and experiment in any given case that the dietetic cause of lithæmia can be ascertained. In the group of carbohydrates and their derivatives which enter into an ordinary dietary, it is often only necessary to exclude the fermented preparations of alcohol to correct the tendency to uric-acid formation. Wines and beers are perhaps more often responsible for this condition than any article of table use. After these I am inclined to class fruits as a frequent cause of lithæmia. It is not an uncommon experience to see attacks of gout even provoked by strawberries, watermelons, apples, and oranges, as readily as by Madeira and Burgundy. The reason why fruits are so prone to produce in gouty subjects primary and secondary derangements of digestion, is probably because of their saccharine property. They are to be classed among the sweets, and, as I have remarked, are often more apt to excite and perpetuate the lithæmic condition than other forms of sweet desserts. The cases are not very rare, in my experience, in which the exclusion of the carbohydrates may need to be extended to the farinaceous foods. I have known instances in which an almost absolute exclusion of them was required in order to control an acid dyspepsia, with its concomitant phenomena of uric-acid showers and deposits of urates. I would not be understood as affirming that anything like the rigid exclusion of carbohydrates from the diet of lithæmic persons, which I believe to be sometimes necessary, is often required. Experiment only can determine what particular group of this class of foods is the source of mischief in the digestive process. It may be the fermented liquors, it may be fruits, it may be the sweet desserts, it may be the farinaceous foods, and it sometimes happens that the lithæmic subject will have to be as strictly debarred from indulgence in all of these things as the glycosuric.

There is one point in regard to lithæmia and its relation to diet to which it is important to refer, and that is, that the inability to convert the carbohydrates which we believe to be the real source of this condition, is occasionally intermittent, and is apparently excited or aggravated by nervous exhaustion from any cause, such as overwork, anxiety, or insomnia. This is especially common in neurotic persons. It is needless to observe that it is more common in persons of sedentary habits and intellectual pursuits, and its frequency is probably largely due to the failure to adapt the diet to the kind of work which the individual is called upon to perform.

There seems to be good reason to believe that a diet composed largely of farinaceous foods is best adapted for the evolution of muscular work, since such a diet requires for its complete combustion a larger supply of oxygen; while for mental labour, and for the occupations which require only a limited amount of mechanical exertion and necessitate an indoor life, a diet composed largely of nitrogenous elements is most readily and perfectly assimilated. This idea, as far as a non-nitrogenous diet is concerned, is in accordance with what has been found by practical experience to be the most successful method of regulating the diet of animals and men from whom a long and steady evolution of muscular work is required.

In regard to the superior adaptation of the nitrogenous foods for the development of the higher forms of vital energy the evidence is perhaps not so clear, though the experience of practical physicians in dealing with the common dyspeptic ailments of intellectual workers would tend, I think, to justify such a conclusion.

The points upon which, in conclusion, I would lay stress are : 1st, That deposits of uric acid and its compounds in the urine do not necessarily indicate so much any considerable increase in the formation of this substance as they do a condition of the blood which affects its solubility and the facility of its excretion. 2nd, That this condition of the blood is one of diminished alkalescence. 3rd, That this diminished alkalescence is produced by the entrance of acid substances into the circulation, largely through the fermentation in the alimentary canal, or the imperfect conversion by the liver of the saccharine and farinaceous elements of the food. 4th, and finally, That clinical experience, which, after all, in the present state of our knowledge of the chemistry of digestion, is our best guide, tends to show that the withdrawal, more or less complete, of the nonnitrogenous foods, and the allowance of a larger admixture of the nitrogenous elements, constitute the most efficient means of controlling the formation and excretion of uric acid and the protean functional and tissue derangements which belong to the lithæmic state.—*Medical Record*, Oct. 12, 1889, p. 393.

45.—ON A CASE OF PAROXYSMAL HÆMOGLOBINURIA.

At the Clinical Society on Nov. 8th, 1889, Mr. Barton related a case which had been under the care of Dr. Ringer.—C. M., æt. 39, came to University College Hospital complaining of passing bloody urine at intervals, with shivering. He had had ague in India, and primary and secondary syphilis. He had also been in a lunatic asylum. His first attack came on in India. He caught cold while out walking, and suddenly began to shiver, his face and hands becoming blue and cold. He experienced numbness in the feet and legs, gradually extending upwards to the trunk, and followed by shooting pains in the region of the kidneys. This was followed by the passage without pain of some dark urine. He then went home to bed, and, after sweating and a few hours' sleep, woke feeling quite well. All his organs were healthy, except for slightly enlarged liver. There was nothing in the family history bearing on his disease. The attacks usually lasted about six hours, and he felt quite well in the intervals of the attack. In those which occurred whilst under observation it was noticed that on one occasion albumen was present before the colouring matter could be detected; that the greater the depth of colour the less the quantity of urine passed, the quantity gradually becoming normal as the colour disappeared; and that the urine after the attacks was very light in colour and of low specific gravity. In the urine passed during an attack no corpuscles, oxalates, or crystals were found. A specimen was sent to Dr. McMunn for spectroscopic examination, who claimed that all its colour was due to methæmoglobin, and stated that all the cases of paroxysmal hæmoglobinuria whose urine he had examined gave the same result. The blood of a finger round which a ligature had been tied and the finger immersed in ice and water for ten minutes showed little tendency on the part of the corpuscles to form rouleaux. The corpuscles were irregular in shape, and had a tendency to adhere to one another at their edges. The white corpuscles were often smaller than the red, and the effect of a meal on the relative number of white to red corpuscles showed no deviation from the normal. With other methods of treatment chlorate of potash was given in gradually increasing doses, the time of administration being strictly from 9.30 a.m. to 12 midday, until in that time he took $\frac{3}{4}$ ss. On another occasion two 4-grain doses of nitrite of sodium were given, with half-an-hour's interval, but in neither case was the urine or blood or the patient obviously affected. Nitro-glycerine tablets of $\frac{1}{100}$ th of a grain were tried, and on one occasion the patient took twenty-eight, or more than a quarter of a grain, in two hours and a half, without obvious effect on urine or blood. Treatment was unsatisfactory, but arsenic seemed to produce longer intervals between the attacks.—*Brit. Med. Jour.*, Nov. 16.

Surgery.

AMPUTATIONS, FRACTURES, DISLOCATIONS, AND
DISEASES OF THE BONES, JOINTS, ETC.

46.—A DESCRIPTION OF THE METHOD OF TREATMENT OF CONGENITAL DISPLACEMENT OF THE HIP-JOINT BY RECUMBENCY AND EXTENSION.

By WILLIAM ADAMS, F.R.C.S., Surgeon Great Northern Hospital,
and to Nat. Hospital for Paralysed and Epileptic, London.

In reference to the pathological conditions which have now been shown to exist in these cases, the object of any method of treatment adopted must be, when the case is undertaken at a sufficiently early period—say 2 years of age or less—to prevent the gradual displacement of the head of the femur by the elongation of the capsular ligament, which takes place when the child begins to walk and throws the weight of the body upon the limb, or limbs, in which the congenital malformation of the hip-joint with imperfect development of the acetabulum exists. This can only be accomplished by long-continued recumbency with extension, so adapted that the head of the femur is retained as nearly as possible in its natural position during a long period of active growth, say, from a year and a half to two years' duration. For this purpose I use the new extension couch, constructed for me by Mr. Ernst, and described in my paper at the Surgical Section of the British Medical Association at Brighton, in August, 1886, when it was exhibited at the meeting. (See *engravings*, pp. 256, 257.)

At the end of this period the child should be gradually allowed to walk with a steel support, when one hip-joint only is affected, somewhat resembling the American hip-joint instrument, which allows of motion at the hip-joint and still maintains extension, whilst the weight of the body is removed from the affected limb. In Sayre's hip-joint splint the weight of the body is sustained by the perineal straps attached to the pelvic band, but in the apparatus Mr. Ernst has constructed for me not only are the perineal bands used, but the tuberosity of the ischium is made to rest upon the back part of the metal thigh trough, so that every care is taken to prevent the weight of the body being thrown upon the affected limb. A raised boot, one inch and a half in thickness, is worn on the healthy limb, and an iron ring-patten on the affected limb. To this ring-patten the boot is fastened by short straps, and the extension is made by a rack-and-

pinion movement in the lever on the leg. As a part of this walking splint I have combined the use of the pelvic belt suggested by Dr. B. Brown, of Boston, U.S., with a large pad placed just above the great trochanter to assist in preventing the head of the femur slipping upwards. With this apparatus the child may be allowed to walk for six months or a year, when it may be gradually discontinued, the child at first using crutches and then one or two sticks. Altogether extension is maintained for a period of 2 to 3 years—I prefer the longer period—and the head of the femur kept as nearly as possible in its natural position during the whole time.

When both hip-joints are affected the best form of apparatus to

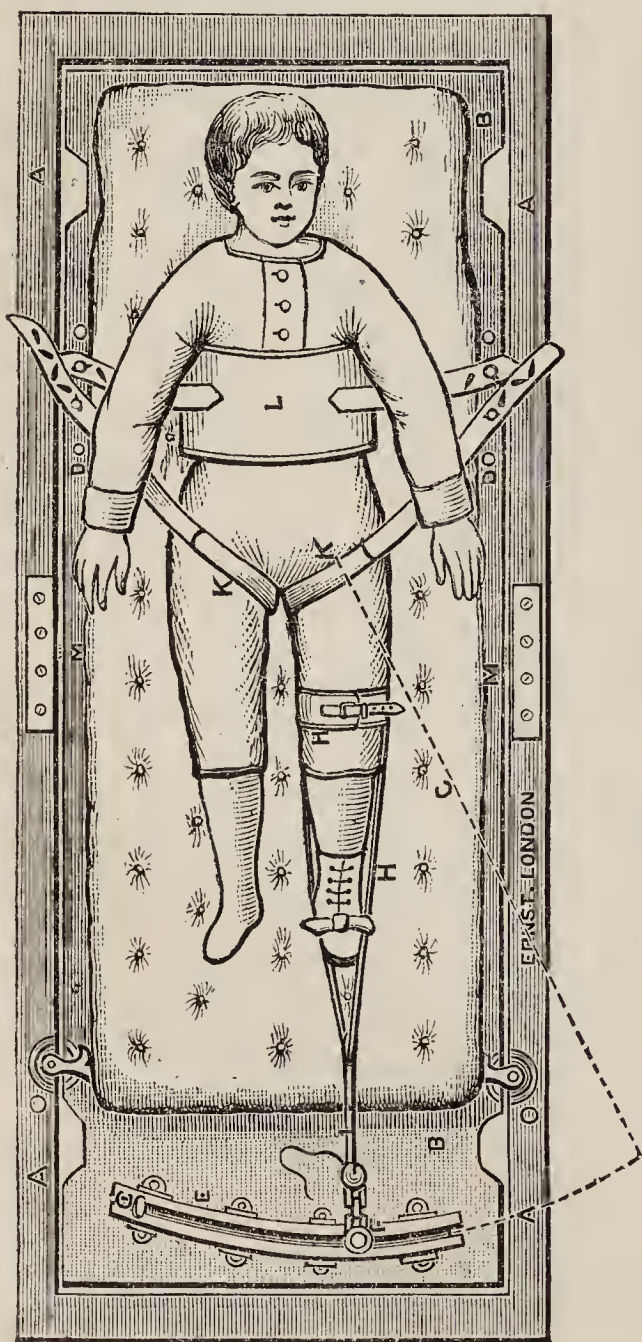


FIG. 1.—Represents the plan of the extension mechanism. The counter-extension is taken from the perineum by two perineal straps K K made of india-rubber tubing; these are cleaner and more adjustable than the padded form. A chest band L is attached to keep the child from moving. Both the chest band and perineal straps are attached to studs D D on each side of the couch. The extension is made by the thigh bandage H and gaiter H. This is connected by a cord to the standard F, which has fixed at the upper part a check attachment known as Durham's pulley. The salient point here is the quadrant movement E. The standard F is fastened at its lower part to a flat sliding piece, which moves in the quadrant up to the distance of the thumb-screw G; by this means it is possible to bring the standard to the extreme point in the dotted line, giving the full abduction of the limb if requisite. As this quadrant is an arc with the radius emanating from the hip-joint, it is apparent that in abducting the limb no loss or increase in the extension power takes place. The thumb-screw G is fixed at whatever position it is desirable to keep the standard.

be used at the commencement of the walking period, that is, in the second stage of the treatment, is that employed by Dr. B. Brown, a kind of square go-cart upon four wheels, with a leather strap passing from before backwards, and buckled upon the cross bars. On the centre of the strap is a small saddle, on which the child sits at such a height as to allow only the toes to touch the floor. There are crutches also attached to the sides of the go-cart to assist in sustaining the weight of the body, and a webbing belt passes round the body.

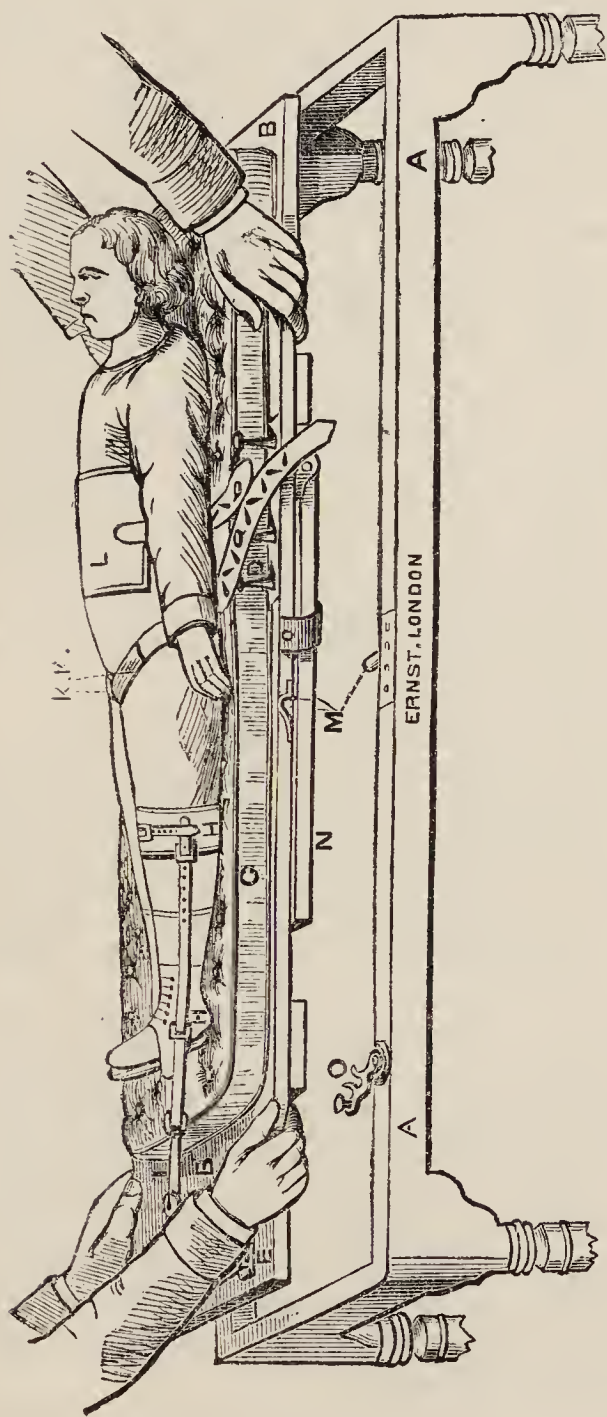


FIG. 2.—Showing the method of detachment, will be clearly understood. The gun metal arches *M* are regulated so as to permit the tilting and easy removal; their shape explains the plan. It is now only necessary to fasten the “sliding guides” up to the couch by leather straps, and the board is complete for out-door transport. In the cases under treatment the patients live in this position. The couch is fitted with a horsehair mattress, and at night a blanket and sheet are carefully placed between the child and the mattress; this can be best accomplished by one person holding the child under the axillæ, and extending gently whilst the perineal and chest straps are unfastened and the “bed” made. In washing it is necessary to place a mackintosh cloth over the entire mattress. The treatment principally depends on rest and the maintenance of the limb in an extended position. This is easily accomplished, for there is no existing contraction, and it is only when the patient stands that the elongated capsular ligament permits the rising of the limb and consequent shortening; the extension force is therefore very slight, and only sufficient to keep the limb in unison with the other.

It is thus evident that the treatment is divided into two stages.

The principle of the first stage is that of complete recumbency, with slight extension, and immobility as complete as can be sustained with comfort, continued night and day for a period of eighteen months to two years. I advise two years if the health is well maintained—and it has been well maintained in the cases under treatment. If the case is undertaken at a sufficiently early period, say, at two years of age or less, the treatment in this stage is essentially preventive.

The principle of the second stage is that of extension, with mobility maintained during progression, without the weight of the body being thrown upon the affected limb or limbs. This can be accomplished in cases of single displacement by an apparatus very much resembling the well-known American hip-joint instrument, and in cases of double displacement by the go-cart and saddle used by Dr. B. Brown. This apparatus should be used for a period of six months to a year—I advise a year. Crutches may be used at first.

The transition from the first to the second stage should be made very gradually, the child at first being allowed to walk with the instrument two or three times a day for a quarter to half an hour, and then return to the extension couch, which is also to be used at night during the whole treatment, and possibly afterwards. During the whole of this stage, and for some time before it is commenced, massage to the affected limb or limbs should be practised twice daily for half an hour each time. It should be applied more especially to the neighbourhood of the hip-joint and the glutei muscles, but it should also be used to strengthen the muscles of the thigh and leg in the affected limb or limbs.

At the end of the second stage, the patient begins to walk in the ordinary way, without any instrumental assistance, but at the commencement crutches should be used, or the nurse should give the child assistance by holding it under the arms, so as to prevent the whole weight of the body being thrown upon the affected limb or limbs. The transition from the second stage to walking without any mechanical assistance must also be made very gradually.

When the case is undertaken at a later period, say about 5 years of age, or even up to 8 or 10, when the displacement has become more confirmed, the same treatment may be carried out, in the hope that the upper and unused portion of the dilated capsule will spontaneously contract during growth. In unilateral displacement, the pelvic tilting and deformity, as well as the lateral curvature of the spine, will certainly be diminished to the lowest possible point by recumbency with extension during active growth, and in a case of double displacement, the pelvic deformity and lordosis will certainly be diminished.

At a still later period, that is, after 10 years of age, there

cannot be any reasonable hope of much improvement so far as the articulation is concerned, except in favourable cases, by the subcutaneous operation which I have proposed, in the hope of obliterating the upper part of the cavity formed by the elongated capsular ligament. By this means, together with partial recumbency and extension, the consecutive deformities may be diminished during the period of growth, say up to 17 or 18 years of age.

In cases of unilateral displacement, weight extension at night and recumbency, or partial recumbency, for four or six hours a day in a spinal chair will be useful up to 17 or 18 years of age; and, as a gymnastic exercise, I recommend the use of the trapeze bar three times a day, the patient wearing a leaden clog, weighing four pounds, on the foot of the affected limb during the exercise. By this means the muscles surrounding the hip-joint are brought into play, whilst the head of the femur is drawn down towards its natural position by the leaden clog, acting as an extension weight, attached to the foot. When all hope even of diminishing the consecutive deformities is given up, it is still desirable that the patient should avoid long standing, and all walking exercises should be limited to one hour, and then followed by recumbency for one hour; exercise for short periods alternating with rest.—*British Med. Journal*, Feb. 22, 1890, p. 406.

47.—ON TWO CASES OF LONG-STANDING DISLOCATION OF BOTH SHOULDERS, TREATED BY OPERATION.

By Sir JOSEPH LISTER, Bart., F.R.S., Professor of Clinical Surgery in King's College, London.

[After reference to a case of dislocation of the shoulder of eight weeks' standing, in which an attempted reduction by manipulation, assisted by the use of pulleys, was followed by rupture of the axillary artery, and death of the patient, Sir Joseph Lister proceeded to narrate the following cases.]

T. C., a robust labourer, aged 47, was engaged on April 17th, 1887, in felling trees; and having climbed up one, fell a distance of forty feet on his outstretched arms, producing subcoracoid luxation of both shoulders. The dislocations remained unreduced, and eight weeks after the accident he was sent to King's College Hospital for relief. On admission, both limbs presented the usual characters of subcoracoid dislocation. He was in a very helpless state, unable to dress himself, with the arms almost fixed in a slightly abducted position, and rotation very limited, particularly on the right side. He occasionally experienced numbness and venous congestion in the hands and arms. After considering for a few days what course it would be best to adopt, I proceeded on June 13th, nine weeks and a half after the accident, to operate

on the left side in the following manner. Having made an incision from the coracoid process downwards and somewhat outwards, in the interval between the deltoid and the pectoralis major, I divided the tendon of the subscapularis muscle at its insertion, and then with a periosteum-detacher proceeded to separate the soft parts from the head of the bone and the inner part of its neck. This having been done so as to make sure that the vessels were entirely detached from the bone, I applied the pulleys in a manner which I need not describe in detail. As the pulleys dragged on the humerus, some fibrous bands were felt to be put on the stretch, and these were divided. The head of the bone still refusing to return to its normal position, the bone was more completely cleared, and the pulleys were again applied. This failing, the head of the bone was protruded through the wound as if for its resection, the external rotators being cut through at their insertions; after which the pulleys were again employed, the direction of the traction being altered from time to time by changing the position of the operating table. The pulleys were then suddenly relaxed by pulling on a slip knot arranged for the purpose, and at the same moment rotation outwards and adduction of the limb were performed. The head of the humerus was thus brought nearer to the glenoid cavity; it went still nearer on a second attempt of the same description, and at a third the head of the bone slipped into its normal place. I need not describe the patient's progress during the first few days further than to say that all went on favourably as regards the state of the wound and his general condition.

Such being the case, on the following week I proceeded to operate on the other shoulder in a similar manner, except that, guided by our experience on the left side, I here at once protruded the head of the bone, dividing the attachments of all the rotators. In this instance, at the second attempt, the pulleys drew the bone into its proper position. The wound on this side, as on the other, remained without disturbance. On August 3rd the patient put on his coat and waistcoat unaided for the first time after the accident. The movements were continually improving. There was never any suppuration from within, either on the right side or on the left; but the passive motion which we maintained seemed to keep up a serous oozing from the interior, and it was nearly two months before the wound on the right side was perfectly cicatrised. On August 22nd, the day after healing was complete, the patient was discharged. On November 2nd, two months later, he came to the hospital for inspection. The arms could then be raised to a right angle with only slight movement of the scapula; and rotation was much improved. Some stiffness of the upper arms in the region of the biceps was observed, more marked on the right side than on the left; other movements were normal. Of his present condition

you will be able to judge for yourselves, as he has kindly given us the opportunity of seeing him here this evening.

You see that the shoulders have their natural rounded form. You are aware, of course, that the rounded form of the shoulder depends partly on the head of the bone being in its proper place, and partly on the deltoid having its due development. Here we have on each side a massive deltoid over the bone *in situ*.

[The patient stated that he could do any hard agricultural work as well as ever. He exhibited all the natural movements of the arms in their normal degree, except elevation of the limb, which he could not do far above the horizontal level. He said, however, that he still found an improvement in that respect going on, so that he could lift, for instance, a key from the top of a clock for the purpose of winding it up, which he could not do a few months ago.] This, gentlemen, was the first case of double dislocation of the shoulder that I happened to have seen, and, strangely enough, before this man left the hospital another example of the same thing made its appearance, due to a very different cause.

C. D., aged 23, was admitted into King's College Hospital on July 26th, 1887. Seven months before his admission the patient, who was an epileptic, dislocated both shoulders in an epileptic fit. He was sent to my colleague, Dr. Ferrier, with a view to the treatment of his epilepsy. Dr. Ferrier, however, found that there was not much that he could do for him, but thought it possible that I might be able to help him with regard to the state of the shoulders. Both humeri were found to have been dislocated in the subcoracoid position. There was considerable movement of the limbs, due to the fact that the scapulæ moved with extraordinary freedom along with the humeri. Nevertheless, he was in a pitiable condition; he could not dress himself, he could not put his hands to the gluteal region, and I need not say what a state of miserable dependence that fact implied. The muscles, especially those of rotation, were extremely atrophied. There were remarkable hollows above and below the spines of the scapulæ, so much so that some medical men who saw him doubted whether such extreme atrophy of the muscles could be explained by mere disuse. Encouraged by the case you have just seen, I determined to attempt to relieve him by operation. On July 29th, I operated on the left shoulder in the same manner as on the former patient. The soft parts having been completely detached from the upper end of the humerus, the pulleys were applied; when the head of the bone returned into position at the first attempt. As regards the after progress I need not go into details. Passive motion was begun thirteen days after the operation, but we found in this case that there was a remarkable tendency to the occurrence of adhesions, making movements extremely difficult. We put him twice under chloroform, and moved the limb under the

anæsthetic. The wound healed in six weeks without any suppuration except from the surface of the granulations ; but the recovery of power was so extremely slow that for a while I feared no good would result from what we had done. In course of time, however, under the influence of passive movement and massage, together with galvanism, he improved so much that at length he besought me to operate upon the other side also. He could now dress himself, and he was no longer in the state of miserable dependence to which I have before referred. He could also lie upon that side, a thing which he could not do before the operation, and he wished that the other limb should be as favourably circumstanced.

But six months more had elapsed after the first operation, and the result of that procedure, although distinctly successful, had not hitherto been by any means brilliant, and I decided that in this case, instead of detaching the soft parts from the end of the humerus, and attempting reduction, I would merely cut down upon the head of the bone and remove it piecemeal by chisel and hammer without disturbance of the attachments of the external rotators. For a study of the skeleton with the humerus in the subcoracoid position had shown me that the removal of the articular portion, without interfering with the tuberosities, would allow the bone to drop back into relation with the glenoid cavity. This was done on January 27th, 1888, and the immediate result entirely answered my expectations. The bone went readily into its place, as I anticipated, and, the wound following the usual aseptic course, the recovery of movement was, in the first instance, much more rapid than it had been on the other side ; and on March 22nd he was in a condition to leave the hospital. I afterwards had reason to regret that I had not followed the same course on the right side as on the left. On June 12th, 1888, he came to show himself. Both arms were continuing to improve in strength, but the left was now considerably stronger than the right, and its movements more perfect. He could put both hands behind his back ; but with the left he could touch the angle of the other scapula, whereas with the right he could only reach as high as the top of the sacrum. He also complained of some pain in the thumb and elbow of the right side, that on which the head of the bone had been removed, while there was no uneasiness whatever on the left side, where the bone had been left intact. I should have been glad if this patient could have presented himself here this evening, but on inquiry I learn that he has gone to America. His brother writes as follows : " In the absence of my brother, I beg to acknowledge the receipt of your letter of the 22nd instant. He sailed for America in June last, where he is working on a farm, and I am thankful to say is enjoying good health. After he came home he had several fits, neither of which appears to have hurt his shoulders ; but for some three months before he went, and

since he has been abroad, they have not returned." That is a happy result, which I am afraid we can hardly attribute to our surgical procedures. "Before he went he had nearly gained full use of his arms and shoulders, the only difference being that he could not raise them in a horizontal position above the shoulder. By slightly bending his head and raising his hand from the elbow-joint, he could brush his hair and remove his hat, and he tells us he thinks they still get a little stronger; but from the fact that he is able to earn his living on the farm by *very* hard manual labour, the operation must be considered a grand success."

Now, gentlemen, it seems to me that the result of these two cases is encouraging to us to adopt a similar course in other cases of old subcoracoid dislocation of the shoulder. In the man who has presented himself before you the attachments of all the rotators to the tuberosities of the humerus were divided, and yet you saw that they have completely re-formed; rotation is perfect, both external and internal. And in the other patient, although the dislocation had been of so much longer standing, the use of the previously wasted rotators had been completely restored. I would advise that when the surgeon feels in doubt as to whether it is prudent to make attempts at reduction, or when such attempts do not succeed, he should, in the first place, cut down upon the bone by the usual incision from the coracoid process downwards and a little outwards, and then with a curved periosteum-detacher freely separate the soft parts from the inner side of the upper end of the humerus. You will then be sure that no damage will be done to the axillary vessels in any manipulations that you may make. In many cases you will doubtless succeed by this means; but if this fails, then these instances show that you may proceed to turn out the head of the bone, detaching the insertions of the rotator muscles, and then in all probability you will be able to effect reduction, and, after reduction, you will have a thoroughly useful limb. Should even this procedure fail, removal of the head of the bone remains open to us, with promise of a good, though inferior, result.—*British Medical Journal*, Jan. 4, 1890, p. 1.

48.—ON THE USE OF CYANIDE OF ZINC AND MERCURY IN ANTISEPTIC DRESSINGS.

By Sir JOSEPH LISTER, Bart., F.R.S., &c.

For the successful antiseptic treatment of a wound two essential points are of course necessary. In the first place we should proceed so as to leave nothing septic in the wound before we apply the dressing, and in the second place we should put on such a dressing as we can thoroughly trust to keep out septic mischief until that dressing shall be changed.

I had intended to bring before you this evening some points

with regard to the former of these objects—the means by which the wound can be kept aseptic till the conclusion of the operation; but since the communication that I made to the Medical Society (British Med. Journal, Nov. 9, 1889), I have been led to make further investigations into some matters regarding the use of the materials I then described, which seemed to me of sufficient importance and interest to warrant me in taking this opportunity of bringing them before you. The material, I may remind you, is a sort of double salt, an amorphous powder, insoluble in water, composed of cyanide of mercury in combination with cyanide of zinc. It does not seem to be a true double cyanide, inasmuch as the proportion of the mercurial element is considerably less than that which should be in a true double salt; nevertheless the mercurial element, as I have found, is of essential importance to the full antiseptic efficacy of the material. It was necessary that this powder, if introduced into a gauze or other fabric, should be fixed so as to prevent it from dusting out, for it is highly irritating to the nostrils, and besides, if it dusted out, the dressing charged with it would lose more and more of its virtues. I described at the Medical Society a means by which this was prevented; how by the use of starch the powder might be fixed in any fabric which was charged with it. But I have long felt that it would be an exceedingly desirable thing if this material could in some way be coloured, because, being perfectly colourless, if a gauze is charged with it, we have to trust entirely to the manufacturer as to whether the antiseptic element is present in due proportion or is not. It would be very advantageous if it could be coloured so that we might see by the tint where the antiseptic substance was, and whether it was uniformly distributed or otherwise. Therefore, before publishing the note which I had promised as to the preparation of the substance, I made attempts to stain this material. I tried various forms of dye, and I found that some of the aniline dyes are precipitated by this zinco-mercuric cyanide, and some are not. For instance, magenta is not precipitated in the least, but methyl-aniline violet and gentian violet, which seem to be a mere variety of the same thing, these are precipitated, and an exceedingly small amount of the dye is sufficient to give adequate colour to the double cyanide. I proceeded to charge a piece of gauze with some of this dyed cyanide, to see how it would tint it, and when it was dry I was much surprised to find that the gauze charged with the tinted cyanide did not dust in anything like the same degree as a gauze would have done which had received the untinted salt; so much so that a gauze charged with the tinted cyanide was very much on a par as to dusting with the gauze charged by means of starch.

Of course, if this were so, it would be a very satisfactory arrangement; we should dispense with the starch, and also with a

quantity of sulphate of potash, which was used for purposes that I need not here refer to; we should greatly simplify the method of manufacture, and also, by getting rid of the starch, we should make our gauze softer, and more comfortable to the patient. It seems a remarkable thing that the dye should thus be able to fix the powder. Of course, we understand how the starch does it. The starch particles becoming attached to the particles of the cyanide, glue them, as it were, to the fibres of the fabric. But how can we explain this dye, in the minute quantity in which we use it, answering the same purpose? I have here some gentian violet dissolved in 50,000 parts of water, and you see the great colouring power that this dye possesses. If I take a piece of gauze and dip it into the solution up to a certain point, you will see the gauze coloured up to that point, but the part that is moistened above by capillary attraction is colourless, showing the avidity with which the fabric seizes the dye. The dye has a remarkable fondness for the fabric; at the same time it is attached to the cyanide, for it is precipitated by it. We can thus understand that the dye may act as a go-between, attaching the cyanide to the fabric by virtue of its affinity for the fabric on the one hand and for the particles of the cyanide on the other. The mode of attachment is altogether different from that by starch, but the thing is done nevertheless. It seems to me astonishing that the dye should have this power. The quantity of gentian violet used is exceedingly small. We take, say, 20 grains of the salt, and diffuse it in 16 ounces of a liquid containing only 1-50,000th part of the dye, draw a piece of the fabric through it, and so charge it with the requisite amount of cyanide.

Note.—After the above paper had been read, I was mortified to find that some gauze, charged by aid of gentian violet, dusted to a very inconvenient degree. This appeared to be due to the influence of the bichloride of mercury, which was used in weak solution (1 part to 4,000) along with the gentian violet in the water in which the cyanide salt was diffused. Bichloride of mercury interferes, to a certain extent, with the precipitation of the gentian violet, and, leaving some of the dye in solution, causes tinting of the gauze independently of the presence of the cyanide salt, and at the same time it impairs the efficacy of the dye in fixing the salt to the fabric. Yet the use of the bichloride of mercury is a matter of great importance, for reasons which I have given elsewhere (*Brit. Med. Journal, loc. cit.*), and it became necessary to look for some other dye on which the bichloride might not exert this prejudicial influence. I have found that there are several colouring matters which answer the purpose fairly well. Thus both carmine and Prussian blue attach the cyanide salt to a cotton fabric perfectly so long as it is moist, but when it is thoroughly dry they are not very good as regards the

question of dusting. The dye which I have found to comply best with all the requisite conditions is logwood, or, rather, the essential ingredient of logwood, hæmatoxylin, which is a definite crystalline substance, and not unduly expensive.

The manner in which I have found it best to use this substance is the following: It is incomparably better to apply it to the freshly precipitated and wet cyanide than to mix it with the salt after its particles have been aggregated in the process of drying. It may be well to mention here the manner in which the cyanide is prepared. Cyanide of potassium, cyanide of mercury, and sulphate of zinc are mixed together in solution, in quantities proportioned to the atomic weights of 2 KCy , HgCy_2 and $\text{ZnSO}_4 + 7 \text{ H}_2\text{O}$; the cyanide of potassium and cyanide of mercury being dissolved together in an ounce and a half of water for every 100 grains of potassium cyanide, and added to the sulphate of zinc dissolved in three times that amount of water, the precipitate is collected in a strainer, and, when well drained, is washed with two successive portions of water equal in quantity to that used for the solutions, namely, 6 ounces for every 100 grains of potassium cyanide, at least this amount of washing being essential in order to free the precipitate sufficiently from the highly irritating soluble salts which are associated with it in its formation. The precipitate having been thus washed and drained, but not dried, it is thoroughly diffused with pestle and mortar in distilled water (6 ounces for every 100 grains of potassium cyanide), containing in solution 1 part of hæmatoxylin for every 100 parts of the cyanide salt, the amount of which is known from the circumstance that the dry product of cyanide salt is almost exactly equal in weight to the potassium cyanide employed. Hæmatoxylin is readily soluble in a small quantity of hot water, and remains in solution when added to a large quantity of cold water. The cyanide salt, while it precipitates the hæmatoxylin, changes its colour to a pale bluish tint. This is advantageously enhanced by the addition of a little ammonia to the mixture, in the proportion of one atom of ammonia ($\text{NH}_3=17$) to each atom of hæmatoxylin ($\text{C}_{16}\text{H}_{14}\text{O}_6 \cdot 3\text{H}_2\text{O}=356$). More than this amount proves prejudicial. The ammonia is added in a dilute form, and it is convenient to have the dilution such that one fluid drachm of the ammoniacal liquid shall correspond with one grain of hæmatoxylin. The dye is further economised by allowing the ammoniated mixture to stand for three or four hours, and stirring it occasionally, so that the ingredients may react thoroughly upon each other. If the mixture is filtered immediately, there is considerable loss of colouring matter. The dyed salt, having been drained and dried at a moderate heat, is levigated, and may then be kept for any length of time fit for use. When employed for charging a dressing it is diffused by means of pestle and mortar in solution of

bichloride of mercury (1 to 4,000) in sufficient abundance to drench the fabric thoroughly, for which 4 imperial pints to 100 grains of the salt will be found adequate. This will give a percentage of between 2 and 3 of the cyanide to the dry gauze. For reasons which I have stated elsewhere (*Brit. Med. Journal, loc. cit.*), the gauze should always be used moist; and if it be prepared for immediate use, as by the dispenser of a hospital, the process of drying may be omitted; the gauze, after being hung up for a while to drain, being deprived further of superfluous moisture by placing it for a while in a folded sheet. It may afterwards be conveniently kept moist by wrapping it in a piece of mackintosh cloth. When obtained dry from the manufacturer, it should be moistened again with the weak corrosive sublimate solution before it is used.—*British Medical Journal, Jan. 4, 1889, p. 3.*

49.—UNUNITED FRACTURE OF RADIUS SUCCESSFULLY TREATED BY THE GRAFTING OF RABBIT'S BONE.

By A. F. MCGILL, Prof. of Surgery, Yorkshire College, Leeds.

The treatment of ununited fracture of one of the bones of the forearm has, as far as I know, always been unsatisfactory. The reason is not difficult to find. In performing the usual operation of resection, it is necessary to remove portions from the end of each fragment, and it is then impossible to get the two portions into apposition. If the radius is broken the ulna prevents apposition, and if the ulna, the radius. To overcome this difficulty it has been proposed to cut down on the unfractured bone and remove a piece corresponding in size to the gap left by the resection. The bones being then wired there seems to be no reason why union should not occur. I have treated one case in this way, but the result was unsatisfactory. When the case which is the subject of this paper came under my care, it occurred to me that it was advisable to follow the line of treatment first suggested by Dr. MacEwen in a case of destruction of the shaft of the humerus from acute necrosis—viz., the building up of new bone by the transplantation of bone fragments. The fragments in my case were taken from a young growing rabbit. The following are the notes taken by Mr. Kellett:—

J. N——, aged twenty, was admitted into the Leeds Infirmary, under the care of Mr. McGill, on March 9th, 1889, suffering from an ununited fracture of the right radius. In February, 1888, he fractured his right forearm; the fracture was compound, the wound being on the radial side. Through the wound the broken ends of the radius protruded. The ulna united perfectly, but the fragments of the radius would not join. Three months after the accident a surgeon exposed the ends of the bone, refreshed them, and wired them together. The wound healed, but the fragments

did not unite. On admission, the radius was found to be fractured at the junction of the lower with the middle third. Over this position is the scar of a perfectly healed wound about two inches and a half in length. The two fragments of the radius are absolutely ununited, the utility of the forearm is much impaired, flexion of the fingers and adduction of the thumb being most imperfect. On March 19th, an Esmarch's bandage having been applied, Mr. McGill made an incision two or three inches in length in the situation of the old scar. Having exposed the ends of the bone, he found that there was no sign of union, and that the two fragments were rounded at their extremities and covered by a thick membrane resembling periosteum. This was removed by means of a file, and bone tissue was thus bared. When this part of the operation was complete, an interval of about three-quarters of an inch was left between the fragments. In the meantime a rabbit, six weeks old, had been killed, and small portions, one or two lines in length, had been chiselled from its femur. With these the interval between the fragments was filled up, thirteen pieces being inserted. The bones were not wired together. The skin wound was stitched up tightly with numerous catgut sutures. No drainage-tube was used. Firm pressure was applied by means of salicylic wool and bandages, and the forearm was placed on an anterior splint. The elastic tourniquet was not removed till the dressings were applied. On March 29th, the tenth day after the operation, the wound was dressed for the first time. There was no suppuration and very little discharge; the wound had healed, except a small superficial spot. The wool dressings were continued till April 16th, when there was slight irritation of the skin; they were consequently discontinued. The patient left the hospital on April 27th with the bone firmly united. In August he was shown at the meeting of the British Medical Association, when the injured arm was as useful as the other.—*Lancet*, Oct. 26.

50.—ON EXTRA-ARTICULAR SUTURE FOR TREATMENT OF FRACTURE OF THE PATELLA.

By THOMAS MYLES, M.B.Dubl., F.R.C.S.I., Surgeon to Jervis Street Hospital, Dublin.

The limb being cleaned, the skin is drawn well up; a small puncture is then made through the skin on either side with a common bradawl; the upper fragment is cautiously drilled from side to side, the drill being constantly kept accurately parallel to the anterior surface of the fragment; through the drill hole a stout nickel-silver pin is passed, its two ends project on either side of the fragment, its centre is buried in the substance of the fragment. The lower fragment is then similarly drilled and transfixed, the skin having been previously drawn well down. With the pin

now in position you have a powerful grip on the fragments, and it is astonishing how little force is necessary to overcome the muscular contraction. When the fragments are drawn together and fixed in proper apposition, a gauze tape can be passed under and around them in a figure of 8, as in a hare-lip operation, or the free ends can be securely wired together. A thick pad of lint, dipped in perchloride solution, 1 in 500, is wrapped around the joint, and outside that a layer of gutta percha tissue, to delay evaporation. A posterior splint and flannel roller completes the dressing, which is not stirred for five or six weeks. After the preliminary puncture and drilling the treatment is absolutely painless, as my patients have again and again asserted.

Such is briefly the method I employed in the first of my series of cases, and it is the method I hope to follow in subsequent ones. In two other cases I modified the method slightly. Instead of drilling the bones I passed the pins between the bone behind and the expansion of the vasti muscles in front, hoping that by doing so I would obtain as good a grip on the fragments as in the first method. The result, however, was disappointing in these cases, the tissue in front of the patella evidently not giving a sufficiently good and enduring grip to the pins. I have abandoned that method now, and will adhere to my original idea in future cases.

The advantages I claim for the method are:—1. That it is effective—that is to say, it will keep the fragments in perfect apposition without the tilting incidental to mechanical appliances. 2. It is free from the danger of septic infection, as the joint is not opened. 3. It is easy and simple, and within the reach of everyone, requiring no costly appliances.

The only methods that I know of that it can fairly be compared with are Professor Volkmann's method and Mr. Treves' modification of Malgaigne's hooks. Professor Volkmann's method consists in passing a wire ligature through the border of the quadriceps above and the ligamentum patellæ below. The objections to this method are so obvious that I will not waste time by detailing them. Mr. Treves' method of using Malgaigne's hooks is open to several objections:—1. Everybody has not, and may not be able to procure, the hooks. 2. The joint is often perforated above or below. 3. The hooks also tend to tilt forwards the lower end of the upper fragments as they press the patella from the front and above. 4. They are painful and cumbersome.

I think I may, without either arrogance or conceit, assert that with either of these methods the plan I suggest will bear comparison of safety, efficiency, and simplicity, and these should be regarded as the basis upon which a decision is to be given. I will now conclude by stating that I honestly believe if bony union can be obtained by any means short of opening into the joint it will be obtained by the Extra-Articular Suture.—*Dublin Med. Jour.*, Nov.

51.—ON THE TREATMENT OF FRACTURE OF THE PATELLA.

By H. H. A. BEACH, M.D., Surgeon; and OTIS K. NEWELL, M.D., Surgeon Out-patient Dept., Massachusetts General Hospital.

The method of treating fractured patella here described is one with which I have been familiar since I first saw it applied by Dr. Beach at his clinic, seven years ago. I have asked permission to describe it, as I consider it of great value to the general practitioner, because from its simplicity and ready application it is especially adapted to cases in private practice. I shall not enter into the details of any single case, but describe the apparatus as it is applied, either as adjunctive treatment to the wired compound comminuted patella, or to the simple muscular-action fracture, where, if the case be seen immediately after the accident, the separated edges of the bone may be readily felt beneath the skin.

In the treatment of fractured patella there are chiefly two things to do, and they are to first extend the leg on the thigh, and so control the position of the lower fragment; and, second, to overcome the action of the extensor quadriceps muscle, and thus regulate the position of the upper portion of the bone. Accessory to this should be the pressure by plain roller bandages over the patella, to prevent tilting or "riding" of the fragments. This is accomplished in the method under consideration by a light wooden ham-splint, well padded and placed posteriorly over the thigh and leg, from the buttock to the upper end of the lower third of the leg, for extension; and by the application of coaptation splints with buckle straps over the extent of the great patella muscle, the quadriceps. A roller bandage should be placed over the coaptation splints, and buckle straps. As for the bandaging over the fragments, this may be practically confined to simple pressure to prevent "riding," as little can be accomplished with the bone and muscle beneath through the various sorts of traction over the skin. As Hamilton well points out, we should avoid pressing the skin down between the fragments. To relax the rectus femoris muscle, which, as we remember, is the portion of the quadriceps having pelvic origin, the leg should be elevated, and that best, perhaps, by placing pillows underneath and tying them in place with strips of bandage passed around the limb and the bed also, if necessary.

This method is perhaps best distinguished from others by its simplicity and the more direct application of control to the action of the great patella muscle, the contraction of which determines, provided the leg be kept straight, the degree of separation of the fragments. Also by the ease with which the coaptation splints may be tightened by means of the buckle straps about them, and thus steadily prevent the opportunity which diminished swelling and atrophy otherwise furnish the muscle to contract within a loosening apparatus.

The apparatus, after being worn for four or five weeks or more in bed, according to the nature of the case, is then equally suited to movement about on crutches, and from its lightness is especially well suited to this. After a time, four weeks or more, the coaptation splints may be omitted and the ham-splint alone retained. The latter admits, if not too tightly bandaged, of a slight degree of motion, and the first step in overcoming the joint adhesions is thus safely begun. I have had a patient, thus treated after a muscular-action fracture, able to walk well without apparatus at the end of nine weeks. A scarcely perceptible fragment separation was present. It is always advised, however, not to attempt too rapid recovery of the knee motion, and to postpone its complete return and unrestricted use even as long as a year.—*N. Y. Medical Record*, March 15, 1890, p. 294.

52.—ON A CASE IN WHICH THE ILIUM WAS TREPHINED FOR ILIAC ABSCESS.

By A. F. MCGILL, F.R.C.S., Surgeon to the Infirmary, Leeds.

The following note shows the good effect which may follow trephining the ilium in suitable cases. Cases of this description are not, however, common. The practice may be expected to be useful when a collection of pus exists under the iliac fascia, and when this collection is circumscribed and limited to the fossa. Pus in this position, when left untreated, will probably pass under Poupart's ligament, and point in the upper part of the thigh extended to the femoral vessels, thus simulating psoas abscess. If they are now opened, or if they burst, a long sinus will be left which will take a considerable time to heal. The direct opening made in the case about to be mentioned apparently avoided this complication, and led to a speedy cure. Possibly this treatment may be of use in cases of abscess in the iliac fossa above the fascia; but I think this is doubtful. The experience of one case is not of much value, but as the treatment adopted is novel, it is given for what it is worth.

C. A.—, aged eighteen, was admitted into the Leeds Infirmary, under the care of Mr. McGill, on May 6th, 1889, complaining of pain in the right iliac region and right thigh. In 1884 Mr. McGill excised her right hip-joint for disease of long standing. She recovered quickly after the operation, and had been able to walk long distances without pain or discomfort until three weeks before admission. She then became feverish, lost her appetite, felt ill, and was seized with violent pain in the right hip and thigh. She was confined to bed, and, as the symptoms increased in severity, she was brought to the infirmary.

On admission, she was seen to be a well-nourished and healthy looking girl. There was a large scar over the right hip at its

posterior aspect, but there was no sinus or fulness in this position. She complained much of pain, which extended downwards from the hip to the knee. This pain was not aggravated by moving the thigh. No fulness or special tenderness could be found in the iliac fossa. Her temperature varied from 99° in the morning to 101° or 102° in the evening. A small weight was placed on the leg, with the effect of somewhat easing the pain. Her condition remained unchanged for three weeks, when deep fluctuation was detected in the right iliac fossa. On May 27th this was aspirated, and six ounces of sweet pus were withdrawn. Aspiration was repeated on May 30th, and four ounces of pus were removed.

On June 4th, the temperature being still hectic in character, Mr. McGill opened the abscess above and behind the anterior superior spine of the ilium. A considerable quantity of pus, which could not be measured, escaped. On passing the finger into the abscess cavity a piece of the iliac fossa the size of a sixpence was felt to be denuded of periosteum. Over this spot, situated five inches below and behind the anterior superior spine, a transverse incision was made, dividing the skin and glutei muscles down to the bone. A three-quarter-inch trephine was applied, and a portion of bone this size, including all that was bare of periosteum, was removed. The abscess cavity was thoroughly scraped in all directions, and freely irrigated with a solution of perchloride of mercury. A drainage-tube large enough to fit exactly into the trephine opening was inserted, and the wound above the iliac crest was closed with sutures. A large antiseptic wool dressing was applied.

The after-progress of the case was in every way satisfactory. There was a copious serous discharge, which necessitated frequent changes of the dressings for forty-eight hours. The temperature dropped to normal on the second day, and never again reached 99° . On June 21st a small tube was substituted for the large one, and on July 1st this was removed. On July 4th, a month after the operation, the wound had entirely healed. She left the infirmary shortly afterwards, and was seen at the end of October perfectly well and doing her work as usual. — *Lancet*, April 5, 1890, p. 743.

53.—ON THE NATURE AND TREATMENT OF FLAT-FOOT.

By THOMAS SMITH ELLIS, M.R.C.S.Eng., Consulting Surgeon to the General Infirmary at Gloucester.

I have myself personally suffered from an extreme condition of flat-foot, the result of an accident twenty-two years ago. My recovery, long since practically complete, was the result of a six-months' application of principles which I had, after anxious study, myself determined. I propose to set forth those guiding principles which have, for many years, directed my treatment of flat-foot. These I have never before fully formulated.

(1.) The foot is supported not only *in* but also *by* the exercise of its functions. The muscles, which by action move, in action sustain the structure. In early life they also develop the form. (2.) Ligaments are insufficient to resist tension when continuous or prolonged. On the other hand, intermittent tension promotes their strength. (3.) Muscles, developed by action, tend to remain taut and firm when not in action, and so, by keeping up continuous pressure, modify the bony contours. (4.) As failure of muscular support tends to deformity from yielding of ligaments, so a renewal of it, in specially active degree, will renew the form. (5.) In good walking the heel is raised from the ground by the calf muscles and by the long flexors, acting, with the peronei and tibialis posticus, at the same time. (6.) While the long flexor muscles press the toes against the ground, they tend to lift up the heads of the metatarsal bones (forming the anterior pillar of the arch), which thus dance, so to speak, on tight ropes. Injurious pressure against the ground is thus prevented, when the weight is borne by the anterior pillar only. (7.) This same action relieves all strain on the ligaments beneath the tarsus while drawing the two pillars towards each other and throwing the arch upwards, just as tightening a bow-string increases the bending of the bow. (8.) In flat-foot the indication is to promote this bow-string or tie-rod action by vigorously springing to tip-toe both as a special exercise and in walking. Avoidance of continuous strain on the ligaments, as in careless standing, is also indicated. (9.) While frequent rising to tip-toe during any necessary standing is desirable, prolonged standing, even in the tip-toe position, is not desirable. In this latter case the muscles are wearied by continuous contraction, and the ligaments lose the benefit of intermittent tension. It is the act, the movement, of rising to tip-toe that is beneficial. (10.) As in order to have free movement upwards the heel must first completely descend to the ground, heels to the boots should be avoided. (11.) The mechanism of the foot is best adapted for a level surface. The sole of the foot, therefore, must not be thickened on the inner side, as sometimes advised. (12.) As the free bending of the foot necessary for efficient function takes place only, or mainly, at the oblique line of the metatarso-phalangeal joints, a thick sole is altogether inadmissible. (13.) The short flexor muscles, acting with the abductors and adductors, play an important part in holding down the proximal phalanx of the first and the middle phalanx of each of the smaller toes, while the long flexors act on the terminal phalanges. (14.) The principal object of the arch being, as I contend, to protect these sole muscles from pressure, steel springs, cork or other pads, which press against them are to be scrupulously avoided. (15.) The great toe having its natural plane of movement obliquely downwards and inwards (away from the others), it is important that

all interference with this lateral movement should be avoided, otherwise the action of its flexors may be suspended. (16.) In such case the bow-string or tie-rod effect of the action of the long flexor on the tarsal arch is lost. In this regard I attach nearly as much importance to proper socks as to proper boots. (17.) As the arch is most pronounced and best adapted to sustain weight, and as the muscles for raising the heel and pressing down the toes act best, when the toes are directed slightly inwards, the toes should never be turned outwards in standing or in walking. (18.) Free movement of the feet being impossible when the body rests on their outer edges, standing or walking in that position is not to be permitted. (19.) As muscles when tired tend to as little action as possible, and so to throw extra strain upon the ligaments, all fatigue is to be avoided. (20.) Inspiration, straightening of the spine and knee, throwing of the arms upwards, and of the head backwards, are all of them movements instinctively associated with the act of rising to extreme tip-toe. All these tend to throw the body, as a whole, into good position. Therefore, any exercise or form of work which involves springing upwards with every inspiration, coming downwards with every expiration (such as wood-cutting), should be encouraged. All exercise or work which involves continuous effort (such as holding up weights) is to be avoided, especially if it involve the squatting position.

Thus, as I contend, good walking and many forms of work are not only compatible with the cure of flat-foot, but may be used as a direct influence to that end. They who walk well will never be flat-footed, and they who are flat-footed—I am not now speaking of cases of bony ankylosis in the deformed position—may, by walking well, be cured. I *know* what took place in my own foot, and I have seen cases which, as I have reason to believe, would have been the subjects of osteotomy had they fallen into the hands of more enterprising surgeons. I have seen those cases get perfectly well, and yet the patients have not left their occupations for a single day.

If it could be shown that muscular action is not necessary to maintain, nor potent to restore when destroyed, the flattened arch, then, as I should have to admit, all the physiology of the feet which I have laid down in my book (*The Human Foot*. Churchill, 1889), produced after many years of careful study, would be worthy only of contemptuous disregard.

If, however, surgeons will disregard that which, in my view, is the true physiology of the feet, and treat flat-foot by propping it up with a pad or spring; and if others prefer to readjust it by cutting out a bone, as one too many, or by fixing that which should be a joint by destroying the joint surfaces; in such cases I can only say—let it not be called a cure.—*Edinburgh Medical Journal*, Jan., 1890, p. 624.

54. —TREATMENT OF INTRACTABLE CIRCULAR ULCER OF THE LEG BY AMPUTATION AT THE ANKLE-JOINT.

By CHARLES BELL KEETLEY, F.R.C.S.Eng., Senior Surgeon to the West London Hospital.

[Mr. Keetley describes as follows his treatment of Intractable Ulcer of the Leg by Amputation at the Ankle-joint, combined with the Transplantation of the Soft Tissues of the Sole and Dorsum of the Foot to the front and back of the Leg respectively.]

In August, 1885, in the West London Hospital, a patient named John J., a gardener, aged forty-six, admitted for amputation at the knee for a large intractable ulcer of the leg, was operated on in a manner afterwards described fully in the *Lancet* for Nov. 28th, 1885. The ulcer having been scraped, the bones and soft tissues of the dorsum of the foot were removed and the whole of the sole of the foot, except loose tendons, but including muscles and the plantar vessels and nerves, was transferred to the site of the ulcer. A portion of the lower end of the tibia had to be removed, or the flap thus obtained would not have reached near to the upper margin of the ulcer. The patient was quite convalescent in six weeks, and exhibited at the Clinical Society in another month (Nov. 13th). I have seen him many times in the past four years. His leg remains well, and the stump is able to bear his weight. The annexed diagrams (Figs. 1 and 2) indicate roughly what was done.

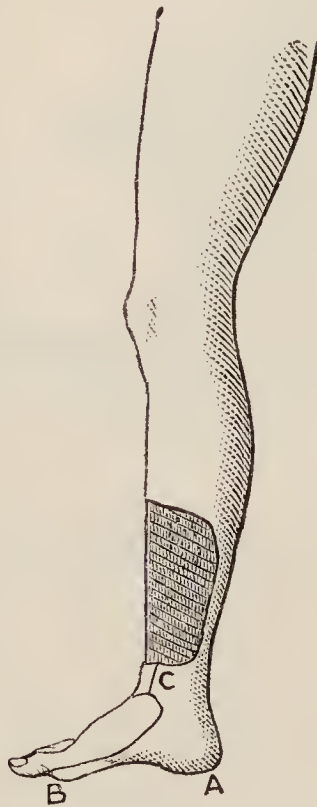


FIG. 1.

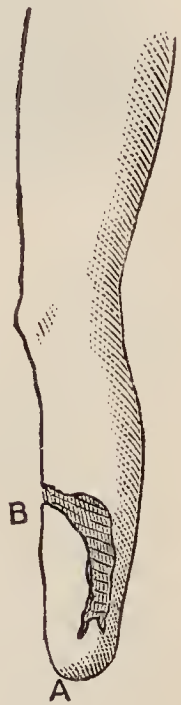


FIG. 2.

On April 2nd, 1888, on a boy named Edward O'N——, aged eleven, who had been run over, and who had lost, by traumatic gangrene, all the skin of one heel and instep, while his arteria dorsalis pedis had also been crushed, the following amputation was performed. The flap A, B, C, D, E, F (Fig. 3) was cut, of which only the distal end B, C, D, E was covered with skin. The proximal part of the flap was a long bridge of muscle, &c., without any skin on its surface, but containing the plantar vessels and nerves.

This part was bent on itself, and the skin-covered part B, C, D, E was applied to the end of the refreshed surface of the tibia. The result was as good as an ordinary Syme, for which, indeed, every one mistakes it. The "bridge" of flesh formed for some time a rather unsightly lump internally and posteriorly, but it gradually dwindled and cicatrised over with the aid of skin-grafting. The case is more fully reported in the "Annals of Surgery," vol. viii.

FIG. 4.

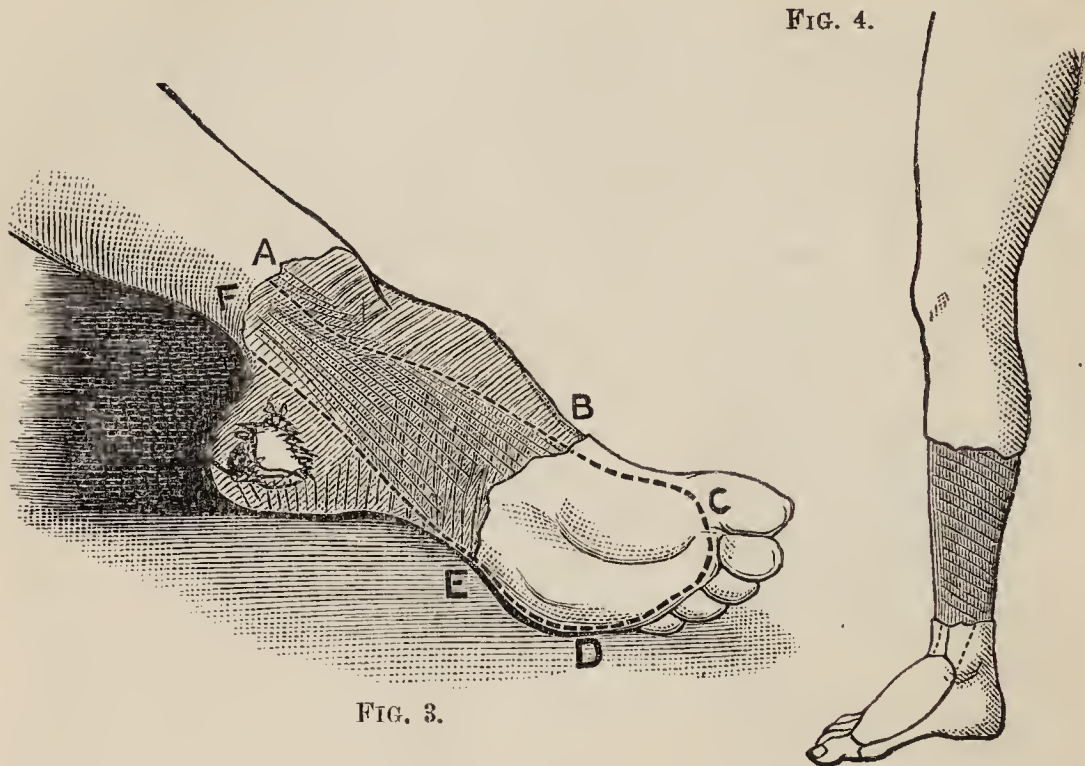


FIG. 3.

Now, what I wish to show is how, by means of a flap analogous in construction to that used in the last case, the skin, &c., of the dorsum of the foot can be preserved in ankle-amputation for, say, complete circular ulcer of the leg. Let us assume a case roughly indicated in the diagram (Fig. 4), the shaded part being a large circular ulcer. (I have unintentionally sketched here a *right* leg, and in Figs. 5 and 6 a *left*.) All granulations and unhealthy edges having been removed, and the whole ulcer and foot thoroughly cleansed and asepticised, turn back the small skin flaps B and C (Fig. 5), from the front of the ankle. Then cut a dorsal flap consisting of the muscles, vessels, and nerves beneath these short skin flaps and of the whole of the skin and soft tissues (down to the bones) of the dorsum of the foot. Loose tendons may be trimmed off. There is then a dorsal flap D, G, E, F (Fig. 5) with a neck uncovered by skin. By bending this neck round over the tibia above the inner malleolus, the dorsal tissues of the foot can be brought over the posterior part of the surface lately ulcerated.

The operation is completed by a procedure like that followed in the first case noticed in this paper. The final result is shown in the diagram (Fig. 6), where F (EF) is the flap from the dorsum, and H, K, L the flap from the heel and sole. The dots indicate the position of the neck of the flap, cut from the dorsal aspect of the foot. In order to economise space, and also to run less risk of being misunderstood, I have endeavoured to be as brief as possible. But to ensure success in "plastic amputations" (a term which, I think, best fits those above described), there are various details to be

FIG 6.

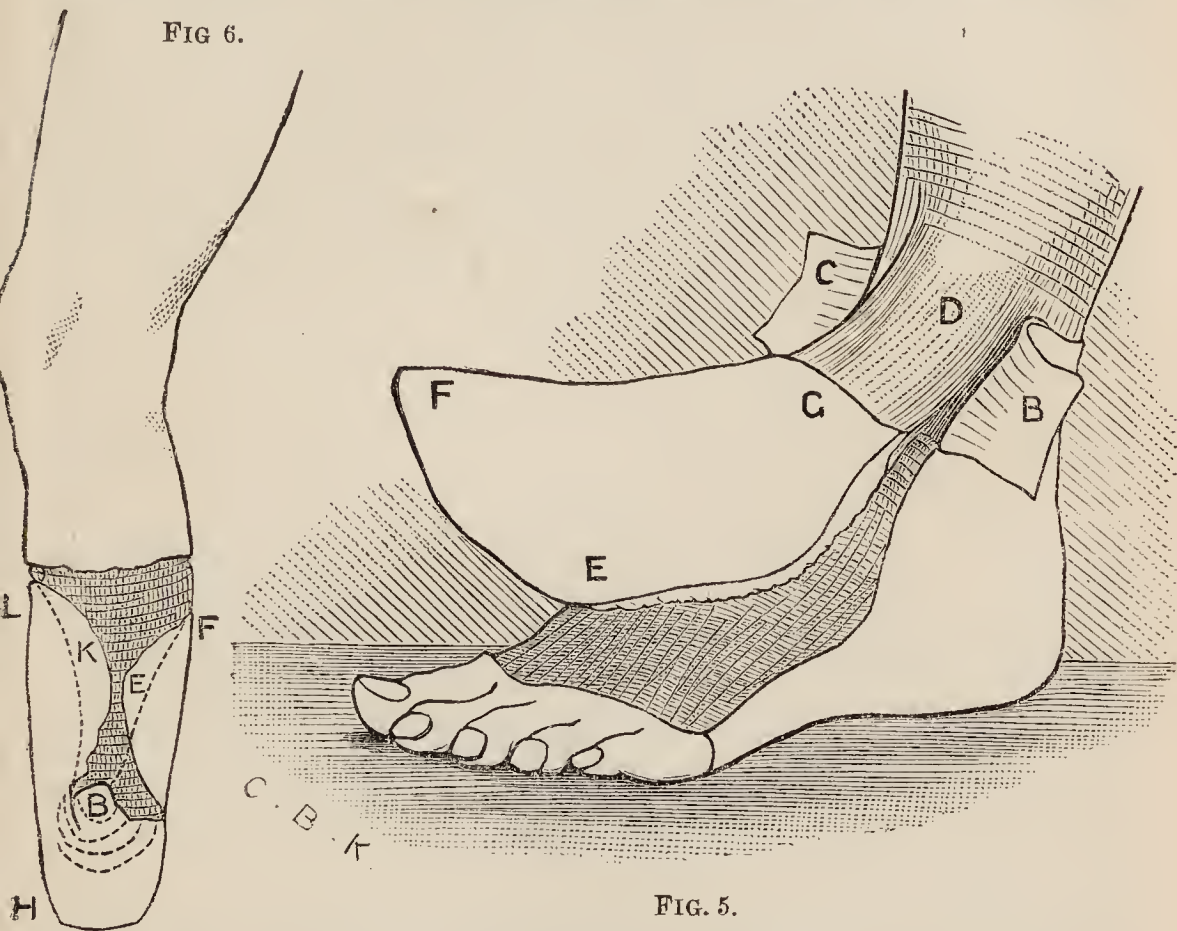


FIG. 5.

attended to. Some of these are given at length in the *Lancet* for Nov. 28th, 1885. After strict antiseptics, including absolute and scientific cleanliness, the most important point is to preserve the main arteries and nerves of the flaps. It is better not to tie any vessels; no main ones should be cut except at the extremity of the flaps. Hemorrhage should be prevented during operation by Esmarch's bandage, afterwards by temporary pressure and elevation of the stump nearly to the perpendicular. Pressure should not be too severe or prolonged over the heel itself.

The above procedures may not be of great absolute value, but they enable a stump like a Syme to be got in cases which would otherwise be condemned to amputation at or near the knee, and they have opened up a field of surgery which, if small, is new.—

Lancet, Feb. 1, 1890, p. 231.

55.—ON SUBCUTICULAR SUTURE IN OPERATION WOUNDS ON THE FACE OR NECK.

By KENDAL FRANKS, F.R.C.S.I., Surg. Adelaide Hospital, Dublin.

In these days when the surgeon's knife is much more frequently demanded than formerly, it is often necessary, in the more exposed parts of the body, to leave as little trace of its use afterwards as possible. This is especially desirable in operation wounds about the face or neck of the fairer sex, for in them we cannot hope, nor is it desirable, that as youth passes into the fuller development of maturity, the growth of hirsute appendages will eventually conceal the mark which the operator has been obliged to make. Much has been gained in this direction by the introduction of antiseptics in surgery, by means of which we can in general ensure an immediate union of the wound's edges. We thus substitute for the cicatrix, often thick and wrinkled, of a wound that has healed by granulation, the delicate, pliant and frequently almost unnoticeable scar which we seek to obtain in union by first intention.

In the neck, for instance, when such a wound is small, and lies in a natural fold of the skin, the scar itself requires no concealment, for it would pass unobserved were it not that on both sides of it small points are most distinguishable, red at first and eventually white, which mark the points at which sutures have been inserted. I have frequently endeavoured to avoid these marks by employing strips of sticking plaster to keep the edges of the wound apposed instead of resorting to stitches, but I was obliged to abandon this method on account of the difficulty of ensuring a perfectly aseptic condition of the parts; because when dry no sticking plaster is reliable, and if it is rendered aseptic by immersion in an antiseptic solution its sticking properties are destroyed. And thus we run the danger either of not keeping the edges of the wound properly apposed, or by allowing the wound to become septic to delay union, in either of which cases the wound must heal by granulation, and the defacement caused by the scar becomes worse than that which would be due to the suture points. These considerations induced me to seek for some other plan which would insure union by first intention, and would at the same time abolish the evidences of the needle. I believe these points are gained by the use of a subcuticular suture. A fine curved needle is required, one of Hagedorn's needles I prefer, and very fine catgut. The suture must be a continuous one. The needle is inserted horizontally, that is parallel to the surface of the skin, at the cut edge of the wound, not vertically to it, and at a distance from the cut edge, as in the ordinary suture. The method of inserting the suture is as follows:—

I begin at a point about quarter of an inch from the upper angle of the wound. The needle is passed horizontally underneath the

epidermis of the skin into the cutis vera and emerges again from the cutis vera at the angle of the wound itself. It is then passed in a similar manner into the cutis vera alone of the opposite side of the wound, beginning at the extreme angle and emerging at a point a quarter of an inch from it. The catgut is drawn through so as to leave just enough at the first point of entrance to enable it to be tied to the portion of the suture which holds the needle. This forms a standing point. The needle is again inserted horizontally into the true skin, beginning immediately below the first point of entrance and comes out again a quarter of an inch lower down; it is then passed similarly into the other edge of the wound, at a point corresponding exactly to the last point of emergence on the opposite side, being brought out again a quarter of an inch lower down. This method is continued until the lower angle of the wound is reached.

Fig. 1.

Fig. 2.

FIG. 1.—Needle in position, showing how the first suture is inserted. The dotted line shows the portion of the needle beneath the cuticle.

FIG. 2.—Shows the appearance of the wound, when the whole of the continuous suture is inserted, before it is tightened. The dotted line shows the portion of the suture beneath the cuticle.



It will thus be seen, as in this model which I have here, that the suture, before it is tightened, has the appearance of a ladder, the visible portions of the suture forming as it were the rungs; and if the suture has been properly inserted, these rungs will all be parallel. Now, when the suture is tightened, in the same way as we draw tight the lace of a shoe, you will see that the edges of the wound come accurately together, without the suture being visible or a single needle point appearing. The suture, you will observe, gives the wound a very slightly wavy appearance, which

however eventually disappears. A knot may now be placed on the free end of the catgut and the rest cut off. I have used this suture for several years, and my colleagues in the Adelaide Hospital have adopted it, and we are all satisfied with the results. It is certainly a little more difficult and a little more tedious than the ordinary suture, and therefore we do not employ it for wounds in the covered parts of the body, but in the exposed parts, and chiefly in the neck, it undoubtedly reduces the ultimate mark to a minimum.

There is one class of cases in which I look upon this suture as of the greatest value, namely, in the removal of scrofulous glands from the neck. Especially is this the case with girls; but it is also most desirable in boys who desire to enter the army, where the regulations of the service prevent their adopting those means of concealment with which Nature would provide them, and where the presence of an unsightly scar would arouse the suspicions of the medical examiner to the point of rejecting the candidate.

A very great and salutary impetus was given to the more radical treatment of these affections by Dr. Clifford Allbutt and Mr. Pridgin Teale, of this town of Leeds, and I have over and over again seen the excellent results to be obtained by the early opening and complete scooping out of suppurating scrofulous glands as advocated by them; but I believe that even more rapid and better results will be gained in those cases which we can approach even at an earlier stage, before the cheesy centres in the glands have broken down into abscesses, and before the capsule of the glands has contracted adhesions to the surrounding tissues, while the gland is still hard and movable, then, through a small incision, perhaps an inch long, or an inch and a half, the gland can be easily enucleated, like the walnut out of its shell, and the resulting wound kept together by a subcuticular suture will leave a cicatrix, which even a close scrutiny will only just detect.

The adoption of the subcuticular suture, as an adjunct to the early removal of scrofulous glands and other tumours from the neck, together with the immediate union insured by aseptic surgery, will I believe prove an addition to the cosmeticism of surgery which many of the sufferers of both sexes will not despise.—*British Medical Journal*, Feb. 22, 1890, p. 414.

56.—ON TENDON TUBERCULOSIS.

By CHRISTIAN FENGER, M.D., Chicago, Illinois.

Tendon tuberculosis is a necessary appendix of tuberculosis of the joints. I do not mean tuberculosis of the tendons where the tuberculosis creeps out along the tendons from a tuberculous joint, as you find it around the tendo Achillis from the ankle joint, or the flexor tendons of the arm from a tuberculous wrist-joint; but

I mean primary tendon tuberculosis, which is on an equal footing with any other primary synovial tuberculosis. The subject of tendon tuberculosis is a new one. French authors more than thirty years ago called attention to a so-called fungous tendon synovitis, describing it, as far as gross appearances go, very well, but of course they did not come to an understanding about its pathology any more than about that of the so-called synovitis of the joints. Nothing was done until 1875 when Volkmann gave a masterly description of the tendon tuberculosis, but without recognising it as a tuberculosis. Then came Riedel, König's assistant, who showed that the rice bodies so commonly found in the so-called fibrinous hydrops of the tendon sheaths, or hygromas of the flexor tendons of the hand always indicate a synovial tuberculosis.

I wish only to say a few words about the pathology of this form of tuberculosis, because as far as it needs treatment, it is a synovial tuberculosis—a fungous synovitis. It is a tuberculosis with an enormous development of tuberculous tissue in the sheath of the tendon and on the tendon itself. In the sheath of the tendon it forms a layer of from one to four lines in thickness, of the usual well-known gelatinous tuberculous tissue. On the tendon it forms a similar layer usually smaller and with that important anatomical feature that this granulation tissue creeps down between the bundles of the tendon and separates them until finally it makes a perfect brush out of them; then atrophy of these separate bundles of the tendon takes place and the tendon ruptures—a spontaneous rupture in the same sense as a spontaneous fracture, that is, that with a very slight movement the tendon tears. If left alone this tendon tuberculosis has the same fate as tuberculosis of the same character in other parts of the body; it goes on to liquefaction of the tubercles and the surrounding tissue, and pus, if we may so call it, tuberculous pus without the pus microbes, forms. This abscess is opened or breaks spontaneously, leaving tuberculous fistulæ with no tendency to heal, just the same as fistulæ leading into tuberculous joints. The same fate, as with all other tuberculous tissue, will be the result of the opening, namely, that if septic invasion from without takes place, that is, if the tuberculosis is not removed at that time, or antiseptic precautions taken, then sepsis sets in and finds a congenial soil in the tuberculous tissue, an excellent culture soil for the common pus microbe; just the same as in tuberculous abscess from Pott's disease, or tuberculosis of the vertebral column, in which the opening is, in the large majority of cases, the beginning of the end. Tendon tuberculosis most commonly attacks the flexor tendons of the hand; then we have the so-called hygroma of the hand with its swelling in the palm and above. These are undoubtedly always tuberculous; further we find isolated tendon tuberculosis in the extensor tendons of the hand, more rarely in the tendons of the lower extremity, as the patellar ligaments.

(Dr. Fenger then related a case of tendon tuberculosis of the extensor tendons of the hand, in which an incision was made extending from within half an inch of the metacarpo-phalangeal articulation, seven inches up the forearm in the median line, over the swelling. The incision was made down to the muscles and tendons and a quantity of rice bodies removed; these were also found enclosed in the sheaths of each of the tendons when opened. The sheaths of the extensor tendons were removed, and each and every tendon was thoroughly scraped to remove the tuberculous material. The extensor tendon of the thumb was divided, it being impossible to separate the tuberculous tissue without this. The tendon was united to one of the other extensor tendons. The integument was sutured with silk and the hand and forearm dressed antiseptically. One week after the operation the wound had united, and the sutures were removed and the hand dressed. Two weeks after the operation there was good union. Four weeks after the operation flexion and extension of the fingers was regained. There was no sign of return of the disease.)

Speaking on this case, Dr. Fenger proceeds to say—When the man came for operation, one of the tendons, the short extensor of the thumb, was destroyed; the others could be separated from the tuberculous tissue. This dissection of the tendons from the tuberculous tissue takes a long time. It has to be done with the utmost care because the tuberculous tissue that runs down between the fibres of the tendons is adherent; there is no short way of rubbing it off the tendons, it must be dissected off carefully, particle by particle, and then the whole sheath of the tendon dissected off with scissors and forceps, just as carefully as in the joints, particle by particle, and this law holds good in all operations for tuberculosis. Then come the difficulties of dressing. It has been found that in dressing with drainage tubes, antiseptic washes, etc., the results are not as good as if the wound is left to heal by the organization of an aseptic clot, as Lister called it. But this healing without drainage implies that the wound shall be filled with blood. No exact union of the wound is made, but a couple of spaces are left between the sutures so that the surface blood can get out. Schede recommends this method, having found that the connective tissue formed in the nidus of the clot was more pliant than the connective tissue formed when there was drainage. That method was used in this case, and the consequence is that much more extension than before is possible. This patient also shows a tuberculosis of a metacarpo-phalangeal joint.

The prognosis as to the future functions of the tendons depends upon perfect asepsis (if there is not perfect asepsis then the result is lost); suppuration must not take place after the operation. It further makes a great difference as to the future function of the hand whether the tuberculosis is on the dorsal or on the palmar

side. On the palmar side of the hand where we have to open from the palm up to the middle of the forearm, the palmar ligament may be divided and reunited with sutures, and it may be necessary to do this so as to dissect out the wall of the common tendon sheath. Tuberculosis in the palm of the hand gives much less satisfactory results after operation for removal of the tuberculous sheath from the tendon, than on the dorsal side of the hand. Another point is that when the tuberculosis has reached the upper end of the tendons it creeps up the muscles not only in the loose connective tissue, but up between the bundles of the muscular fibres. This we can recognise with the naked eye by the colour and consistency of the muscle. The invaded muscle becomes hard and grayish and is not shining as the normal muscle tissue. Of course all this tissue has to be cut away carefully, because it is one of the modern improvements of our technique in operating for tuberculosis that every part of the diseased tissue is carefully removed from the points by scissors and forceps, so as to leave, if possible, no tuberculous tissue at all. This makes a very different operation from the one where the bones are sawed off from the joints, for instance, and the abscess drained, no care being taken either of the walls of the abscess or the cartilage, the consequence being that the tuberculosis very often grows right out again and there is greater liability to sepsis setting in. These operations are long and tedious, but if perfect asepsis is secured we may expect the results to be locally permanent. Tendon tuberculosis is a rare disease; it exists only in 1 or 2 per cent. of the cases in the statistics of tuberculosis.—*Journal of Amer. Med. Association*, Oct. 26, 1889, p. 595.

57.—ON ACUTE ARTHRITIS IN INFANTS.

By W. R. TOWNSEND, A.M., M.D., Instructor in Orthopædic Surgery, New York Polyclinic.

Among the many acute diseases of bones, probably none has attracted more attention of late years than osteomyelitis. This is largely due to the fact that with our advanced knowledge of bacteriology many points in its etiology and causation have been cleared up, and at the same time our methods of treatment are more scientific and accurate.

Acute arthritis begins, usually, in the epiphysis as a hyperæmia or congestion of the bloodvessels situated within this structure, or in some cases in the dividing line between epiphysis and diaphysis, or rarely in the diaphysis. This congestion is soon succeeded by inflammation and the rapid production of pus. The pus soon enters the joint cavity, though in many cases the opening is no larger than a mere pin-hole. The pus instead of entering the joint, or even after the joint has been invaded by the breaking down of the tissues beneath the epiphyses, may burrow along under the

periosteum and open through it at a point remote from the joint. This abscess is "sub-articular" at the beginning. In some instances, before the pus escapes to the surface, it may follow down through the medulla, which, in infants, is not a distinct canal, and thus invade a neighbouring joint or produce the same effect by dissecting down under the periosteum along the shaft. Again, it may be absorbed into the general system and an abscess occur by metastasis in some distant joint, in the soft parts, or in some of the viscera. The character of the pus varies considerably. It may be thick, yellowish, and sticky and in some cases tinged with blood, or dark brown in colour and thin. The time at which it is examined, no doubt, influences its character, for we might reasonably expect to find it different when confined to the bone alone, or when involving the joint and the adjacent soft parts. M. Kiener has shown that numerous microbes are found in the tissues contained in bones affected with this disease, and mentions the staphylococcus aureus and albus. Rodet is quoted by Ollier at the first congress of French surgeons as having produced all the varieties of juxta-epiphysial osteitis by inoculations with fluid cultures of the staphylococcus aureus.

Destruction of the epiphysis soon begins, and the necrotic process may go on to the entire destruction of the articular end of the bone. The necrosis may result in the formation of a sequestrum, but usually as the disease advances the pus carries away the broken-down bony and cartilaginous tissues, and at an early period we get grating in the joints, due to the destruction of the cartilage on the bone ends, thus allowing the rubbing together of the two rough surfaces. With the destruction of the epiphysis or its separation from the diaphysis the normal movements of the joint affected are altered, and we may get either a pathological dislocation or a flail-like joint, rarely we get ankylosis. The dislocation of the bone from its articulation may also be due to the destruction of the joint capsule by the products of inflammation, or by destruction of the soft parts adjacent to the articulation. After the products of inflammation have reached the surface and been discharged either by spontaneous rupture or by an incision, the tendency is for the disease to subside with considerable rapidity, and usually the discharge soon ceases and a reparative process is begun. In those cases where the abscess is sub-articular and opens into the joint by a small opening, if the products of inflammation are evacuated early, there may be very slight change in the synovial membrane, the cartilages, and ligaments; but if the products of inflammation remain long in the joint the various structures entering into it may undergo serious changes, and even be completely destroyed. The probable reason that the epiphysis is most frequently the starting-point of the disease is that the age of the patient is a pre-

disposing cause, for when the bone is being produced and growth taking place, the centres of ossification of the epiphyses are the most vascular portions, and any congestion is more liable to occur here than at any other point.

As yet no separate and distinct form of coccus has been discovered in acute arthritis of infants different from what we find in osteomyelitis occurring at a later age, and we cannot but conclude that the disease is a pyæmia of bone. In slight cases where but little injury has been done to the bone or soft parts, the joint may be as good as before. In the upper end of the femur, when the epiphysis has become separated from the remainder of the bone, and in many cases the ligaments affected, the thigh-bone may be displaced on to the dorsum ilii, and the condition resemble "congenital dislocation of the hip." The motions are free, and the limb is shortened from two causes: first, from the loss of the epiphysis; second, from the bone being displaced, as in a dislocation. The patient often walks well, but the shortening of the limb will produce some lateral curvature of the spine, due to the tilting of the pelvis. In some cases where the bone has become displaced, instead of the signs of a pathological dislocation, we may have the limb ankylosed and in a faulty position. This is unusual, however. At the knee, if it is the lower epiphysis of the femur which has been destroyed, the movements of the joint will be free, in fact, freer than normal, there will be shortening of the limb, and the same secondary changes in the spinal column. At the shoulder, elbow, and other joints, similar results may occur. In some cases the sequestrum may remain behind and cause trouble, necessitating its removal. The necrosis of the bone, when it extends to the shaft, may destroy much bony tissue, and if at the same time the periosteum is affected, the resulting deformity may be extensive.

The causes of acute arthritis in infants are not always easy to ascertain. In a number of cases the most careful investigation fails to discover any. Traumatism of varying degrees of severity are more frequently assigned as a cause than anything else, and when we consider how slight an injury in an infant may produce a severe contusion, not only of the soft parts but of the deeper structures, we are not surprised at this. Pyæmia, or the absorption of pus from some other portion of the body, in many instances acts as an exciting cause. In some cases the exact point is easily demonstrated. A suppurating umbilicus may be the starting point and the hip or knee-joint affection be secondary to it. The various exanthemata may act as exciting causes. Typhoid fever in older children is in many instances an exciting cause of periostitis, but I have found no cases recorded where a suppurative arthritis followed. Scarlatina also may be complicated or followed by a joint trouble of a purulent character, and most writers speak of it.

The symptoms of acute arthritis in infants are quite constant, only we have different forms of severity of the disease. In most cases the disease is ushered in by a chill, although in a very young infant this may be absent or difficult to detect. A rise of temperature follows the initial chill, and in the very severe cases this may be well marked and at an early date be extreme. There is usually a difference between the evening and morning temperatures, the latter being the lower. The joint affected very soon becomes flexed, and in all the cases I have seen in the acute stage this was one of the most constant symptoms. Any effort at straightening the limb is resisted by muscular spasm and usually causes considerable pain. The child may be very restless and fretful, and this may be due directly to the pain produced by the disease in the bone and articulation. A purulent effusion soon takes place in one or more joints, there is increased heat, limited motion at the articulation, and as the pus increases the superficial tissues may become red and oedematous or may be brown and glazed in appearance. The superficial veins become enlarged, the abscess with more or less rapidity invades the surrounding tissues, and in arthritis at the knee may extend to the hip or a considerable distance down the limb, toward the ankle. Whilst the local symptoms are increasing the constitutional symptoms become more marked, the temperature rises until in the evening it may be 104° or over; the child becomes wasted, pale, sallow, has an anxious expression, may be delirious or have convulsions, or may have several chills followed by fever; and unless the patient's constitution be very strong or the surgeon interferes, the case rapidly goes on to a fatal termination. Very acute cases have been known to run their entire course in thirty-six hours. In these acute and severe cases exhaustion or pyæmic deposits in some of the viscera are the usual causes of death. In other cases the initial symptoms are the same, but the disease does not run nearly so rapid a course, and the abscess or purulent collection in the joint is formed more slowly. The constitutional symptoms are not so severe, and the effusion in the joint or the abscesses in the surrounding tissues, though they be large, gradually come to the surface and discharge or are opened by the surgeon, and the little patient makes a rather rapid recovery considering the nature and severity of the disease.

The diagnosis of acute arthritis of infants, though in most cases not difficult, yet at times is perplexing. It may be confounded with acute rheumatism, sprains and contusions of the joints, syphilitic disease of the bone, abscesses in the neighbourhood of an articulation, or what is sometimes called "acute peri-arthritis," and with malignant growths, and, in some rare instances, with a tubercular osteitis, in which abscesses appear early, and the symptoms at the onset are usually acute, or in later years the previous disease may be overlooked, and the case mistaken for a congenital disloca-

tion. From acute rheumatism the diagnosis can be made by examining the character of the joint effusion. In rheumatism it is thin or flaky, but not purulent, and the swelling is confined to the joint and does not invade the surrounding tissues. The rheumatic diathesis must also be inquired into, and the general condition of the patient taken into account. In the purulent effusions the constitutional symptoms are more severe, and the emaciation, loss of flesh, &c., more marked. In sprains and contusions, although several joints may be involved, there are usually slight if any constitutional symptoms, but little pyrexia, and no loss of flesh or signs of blood-poisoning. It is the tissues about the joint, or, rather, superficial ones, which are involved, and a careful examination will disclose this fact. Syphilitic disease of the bones in infants is the trouble for which we are most apt to mistake arthritis of infants, and in all cases the history of syphilis must be carefully inquired into. The history of syphilis, the fact that swelling begins at a slight distance from the articulation and extends to it secondarily, that at first no fluctuation is present, that usually several joints are affected, that some of the specific forms of skin disease are often present, and that progress of the disease is usually not so rapid, and is relieved by the proper antisiphilitic treatment, are all points of importance in arriving at a diagnosis.

From an "acute peri arthritis," or an abscess adjacent to the articulation, the diagnosis is easily made. We have generally a history of traumatism and a more or less rapid formation of pus in the periarticular tissues, without the joint being involved. If abscesses be large, there may be severe constitutional symptoms, but other joints are not affected, and the symptoms are generally purely local. In cases where the formation of the abscess has not been very rapid, and is of great size, tissues glazed in appearance, superficial veins much dilated, cachexia extreme, acute arthritis of infants may easily be mistaken for malignant disease. Such errors have been reported by many competent observers. The use of the hypodermatic needle, the involvement of the neighbouring lymphatics, the rate of growth, a careful examination of the tumour and surrounding tissues, and the motion in the adjacent articulation, if carefully looked for, will in all cases render a diagnosis clear, though it may at first seem difficult.

Once the diagnosis is made, the purulent collection, whether in the joint or the surrounding tissues, should be evacuated. Delays are dangerous. Free incisions, thorough drainage, and antiseptic precautions alone offer us any chance of successfully combating the disease. The incisions should be sufficiently large to permit thorough drainage. If the abscess has invaded the soft parts about the articulation, the incision should extend down to the bone, and by that, I mean through the periosteum; for underneath it the pus may still be confined. After the joint has been opened and drainage

secured, it should be thoroughly washed out with some antiseptic solution, and, if necessary, drainage-tubes or tents of iodoformized gauze or horsehair should be used to prevent the pus remaining in the joint, should more be formed. If the necrosis persist, it may be necessary, either with a gouge or Volkmann spoon, to scrape out thoroughly the sinus leading to the dead bone, and then remove such diseased bone as may be present. If the sequestrum be so situated as not to be readily removed, a more extensive operation will be necessary.

If any fear of ankylosis occur, or the surrounding parts in cicatrizing tend to produce deformity, the use of a proper splint will be necessary to keep the limb in the best possible position. If the loss of bone be very great and the joint rendered useless thereby, the question of excision or amputation will be presented to the surgeon, or it may be necessary to decide upon some form of mechanical appliance suited to the case.

If the deformity produced be confined to the soft parts, section of tendons or of cicatrices may also be necessary. In addition to operative interference, the constitutional treatment should not be neglected. The patient's strength should be supported by stimulants, such as brandy or whisky, carbonate of ammonium, morphine, and other suitable remedies, and during convalescence tonics should be prescribed. But the most important point is the early evacuation of the pus, whether in the joint, bone, or soft parts. — *American Journal of Medical Sciences*, Jan. 1890, p. 1.

ALIMENTARY CANAL.

58.—ON ŒSOPHAGOTOMY FOR THE REMOVAL OF FOREIGN BODIES FROM THE GULLET.

By F. A. SOUTHAM, M.B.Oxon., F.R.C.S.Eng., Surgeon to the Manchester Royal Infirmary.

[Mr. Southam publishes two successful Cases of Œsophagotomy for the Removal of Foreign Bodies, and then proceeds to make the following observations upon the subject.]

1. *Question of operative interference.*—When the foreign body is of considerable size and irregular in shape, as in the case of a tooth-plate, and when it is so firmly fixed in the gullet that it resists all attempts at extraction through the mouth, œsophagotomy should at once be performed. If left in the hope that it may make its way onwards and be subsequently passed by the bowel, very serious results are liable to ensue, as Church has shown in a valuable paper published in the *St. Bartholomew's Hospital Reports*, vol. xix. The foreign body frequently causes ulceration of the œsophagus, and this complication is often followed by sup-

uration in the surrounding tissues or by fatal hemorrhage, owing to the ulceration opening one of the adjacent large blood-vessels. The sooner recourse is had to operative interference, the more favourable will be the result; for if œsophagotomy is performed early—i.e., before inflammation and suppuration have supervened,—the operation is attended by much less risk than if some interval has been allowed to elapse. According to Fische, the mortality is only 15 per cent. when œsophagotomy is performed within the first two days after the introduction of the foreign body; while, if delayed until the third or fourth day, it reaches 30 per cent.

2. *The operation.*—The operation is much easier of performance when the foreign body is situated in the cervical portion of the œsophagus (as in Case 1), and when it can be felt through the walls of the canal, as it forms a projection which can be cut down upon without the necessity of introducing any guide from the mouth. When impacted in the thoracic portion of the canal, and when the opening has to be made as low down as possible (as in Case 2), the exposure and opening of the œsophagus are much more difficult, especially if the neck is thick. Under these circumstances a full-sized bougie introduced through the mouth will probably be found a better guide than a pair of curved forceps or a sound, as usually recommended.

3. *Suture of œsophagus.*—As regards the question of suturing the opening in the œsophagus, this must be decided by the condition of the wound in its walls. If the margins of the wound are clean cut and free from bruising, it may be attempted, fine catgut sutures being employed; and under these circumstances there is a possibility of union at once taking place. If this happens, the wound in the overlying parts will more quickly heal, for the tissues to the neck will be kept free from the irritation of the saliva, which, as it is swallowed, tends to continually escape through the œsophageal opening when the latter is left unclosed. Care must be taken not to include the mucous membrane in the sutures, which should only pass through the muscular coat, for we know that in other parts of the body the divided mucous membrane does not readily unite, and if it becomes everted so as to fall in between the margins of the wound, its presence will interfere with repair. In most cases, however, it will be found that the œsophageal walls at the point of impaction will have become somewhat bruised and inflamed, the mucous membrane especially being lacerated, in consequence of the foreign body tearing and dragging upon it during the attempts previously made at extraction. Moreover, the actual removal of the body itself, if it is large and irregular, and when effected through a small opening, will be likely to conduce towards the same result. Under these circumstances the œsophageal wound is not likely to heal by

primary union, and it was for these reasons that in neither of the preceding cases was suture attempted. This view is supported by a consideration of seven recorded cases where the œsophagus was sutured. In four cases where the foreign body was removed through the wound, it proved unsuccessful. In three cases primary union appears to have taken place, but in only one of these (Wright's) was the foreign body extracted; in Lediard's, it was not found at the time of operation, and in Lange's it was pushed onwards into the stomach, so that presumably in both these patients the margins of the opening in the œsophagus would escape the bruising and laceration which usually accompany the extraction of the foreign body, when of considerable size, and especially if sharp and irregular, as in the case of a tooth-plate.

4. *After-treatment.*—Owing to the difficulty of obtaining primary union, even if the œsophagus is sutured, and also of maintaining an aseptic condition of the wound in consequence of the escape of saliva through it, free drainage should be provided for by leaving the superficial wound partly open, and by inserting a tube, which should reach down to the opening in the œsophagus. When there is a copious discharge, as in both my patients, the wound should be syringed out with some antiseptic lotion (e.g., boracic), and the dressings changed frequently. The plan adopted of allowing the patients to frequently swallow small quantities of boracic mixture is, I think, also useful, for the greater part of the fluid at first escapes through the wound, and in this way thoroughly irrigates it from the bottom; at the same time it relieves the thirst from which the patients suffer, when no liquid food is being given by the mouth. By these means, though the discharge, which consisted of a mixture of frothy saliva and muco-pus, was somewhat profuse, the wound was in both cases kept in a fairly sweet condition, and there was never any tendency to the development of cervical cellulitis, a frequent complication of this operation, and one which is always liable to be attended by serious results.

5. *Administration of food.*—Inasmuch as it is not desirable to give any food by the mouth for some days, the feeding of the patient after œsophagotomy is always a difficult matter. It may be carried out in two ways—viz., nutrient enemata or suppositories may be administered, or food may be introduced directly into the stomach by means of a soft tube passed through the mouth, nose, or wound in the neck. If enemata can be retained by the patient, this method is preferable, for by keeping the wound free from the irritation caused by the passage of a tube, as well as from contact with any food regurgitated by the stomach, the parts are placed in the best condition for healing. In both cases the patients were fed entirely in this way for the first fortnight, the enemata, which were administered every four hours, being well retained, nothing being given by the mouth except boracic mixture and ice, as already

mentioned. At the end of this period a tube was passed by the mouth (after the second day by the patients themselves), and at the end of three weeks, when the wound was nearly closed, the tube was discontinued, and the patients were allowed to swallow liquid food. It was then found that very little fluid escaped through the wound, the greater part passing onwards into the stomach; what did escape appeared to cause no irritation, probably owing to the fact that by this time the opening in the neck was converted into a fistulous track lined with a layer of healthy granulation tissue. If the enemata are not retained, food must of course be introduced much earlier into the stomach, and under these circumstances the passage of a soft tube through the mouth is, I think, for obvious reasons preferable to the method recommended by Markoe of introducing it directly through the wound in neck.

6. *Results of operation.*—According to Gross, the number of cases of œsophagotomy recorded up to 1886 is 82; of these, 63 were successful and 19 terminated fatally. Since that date I have found reported in the different journals 14 additional cases, of which 10 were successful and 4 were followed by death. If the two cases above described are included, this will give a total of 98 cases, of which 75 were successful and 23 unsuccessful—that is to say, the operation of œsophagotomy is attended by a mortality of a little less than 25 per cent.—*Lancet*, Dec. 28, 1890, p. 1326.

59.—ON THE NATURE AND VARIETIES OF TYPHLITIS.

By FREDERICK TREVES, F.R.C.S., Surgeon to, and Lecturer on Anatomy at the London Hospital.

It was at one time customary to divide inflammations about the cæcum into three or four classes: (*a*) inflammation of the cæcum itself (typhlitis); (*b*) inflammation of the peritoneum about that bowel (perityphlitis); (*c*) inflammation of the connective tissue supposed to partly surround the cæcum (paratyphlitis); and (*d*) inflammation of the appendix (appendicitis). This classification has long since been shown to be unsound.

Without entering at length into the pathology of the affection, the following points may be briefly stated:

1. There is no evidence to show that primary inflammation of the walls of the cæcum, independent of catarrh or ulceration of the mucous membrane, exists.

2. Inasmuch as both the cæcum and the appendix are entirely covered by serous membrane, a perforation in either of these organs cannot lead to suppuration of the connective tissue of the iliac fossa. Primary inflammation of this connective tissue may safely be said to be unknown.

3. Catarrh of the cæcum occurs in connection with a more general colitis, but the symptoms produced are those of colitis, and

not of typhlitis. Catarrh of the cæcum, even when of an acute kind, does not appear to produce the symptoms of typhlitis.

4. Ulceration of the cæcum is common. The most usual form of ulcer is that known as the stercoral, and is due to the impaction of fæces in the part. Other forms of ulceration are associated with tuberculosis, with dysentery and typhoid fever, with the impaction of foreign bodies, and possibly with syphilis. (Cancer of the bowel is not considered.) An ulcer of the cæcum, so long as it remains limited to the mucous membrane, may cause no symptoms, and will in any case not produce the symptoms of typhlitis. When such an ulcer has spread to the outer walls of the caput coli a peritonitis ensues, and the typical phenomena of typhlitis of some grade are usually produced. Any ulcer of the cæcum may lead to perforation. In connection with the stercoral ulcer the perforation appears late, and follows upon the symptoms of prolonged fæcal obstruction. A large number of cases of fatal fæcal accumulation terminate by perforation or rupture of the cæcum, but in such instances the preceding symptoms have not been those of typhlitis.

5. Perforation of the cæcum as (what may be termed) a primary condition is very rare. Fitz in his elaborate monograph (dealing with 257 cases of perforative appendicitis and 209 cases of typhlitis—so called) could only find three examples, one from the impaction of a pin, another from impaction of a fish bone, and a third from some “strangulation” of the bowel. I have known perforation of the cæcum to occur as a primary condition, preceded by few abdominal symptoms, in a case of tubercular ulcer of the colon in a subject of phthisis. When a typhlitic abscess is evacuated it is not uncommon to find that the abscess communicates through a ragged aperture with the cavity of the cæcum. In nearly every instance of this there is evidence to show that the abscess had commenced outside the cæcum (in the appendix), and had made its way into the caput coli, just as it might have burst into the bladder or ileum, or have entered the connective-tissue behind the ascending colon.

6. Abscesses resulting from mischief in the cæcum or appendix are primarily intraperitoneal, and are encysted forms of suppurative peritonitis. Inasmuch as the cæcum and vermiform process are normally entirely surrounded by serous membrane, any inflammation extending from them must first implicate the peritoneum. The pus resulting from the encysted suppurative peritonitis (the intraperitoneal abscess) may burst into the abdominal cavity, or make its way through the skin or into the connective tissue of the vicinity, or effect an escape through any adjacent hollow viscus such as the rectum or bladder.

7. The milder varieties of typhlitis are usually due to a peritonitis over the cæcum which has been set up by the spreading in

depth of a stercoral ulcer. The severer forms, and notably those which induce suppuration, usually depend upon troubles in the appendix such as may be due to a foreign body—a faecal concretion, the twisting or strangulation of the process, and the like. The records of the London Hospital during the last few years show twenty-five fatal cases of “typhlitis,” in every one of which the appendix was found to be involved. During the same period over thirty-five cases of typhlitis were admitted in which complete recovery followed without suppuration, and with no other than medical treatment. Fitz, as the result of his investigations, remarks, “In most fatal cases of typhlitis the cæcum is intact, while the appendix is ulcerated and perforated.” On the other hand, I have been able to show that typhlitis of quite a mild grade may follow troubles in the appendix, and may end in speedy resolution, and that severe forms of typhlitis may be due to mischief in the vermiform process without any suppuration following. In one case under my care the patient had had fourteen attacks of typhlitis; surgical exploration showed that the appendix was the cause of the trouble, but not one drop of pus had been formed.

8. With regard to the specific troubles in the appendix which cause typhlitis, the cases collected by Fitz, Bull, and others show that a faecal concretion may be expected to exist in nearly one-half of the cases, and a foreign body in nearly one-eighth. The latter include seeds, grape stones, cherry stones, bristles, pins, shot, small gall stones, and the like. The appendix in these instances is found to be perforated, or in a state of sloughing or gangrene. The process may be found perforated, and yet no foreign body be detected. It may become gangrenous from being twisted upon itself, or may be found to be enormously distended with mucus from obliteration of its lumen, or to be the seat of acute ulceration. It may be adherent to the cæcum, to the ileum, the rectum, the bladder, the ureter, the mesentery, or to the peritoneum of the pelvis or abdominal wall. The resulting abscess may burst through the anterior abdominal parietes or make its way into the pelvis or thigh, or open into any neighbouring viscus. It has extended along the connective tissue behind the ascending colon, and has reached the liver, and even perforated the diaphragm. It has entered the hip-joint, and has laid bare the ilium. As regards the usual tendency of the abscess, an analysis of sixty-seven cases collected by Bull shows the following: In twenty-eight instances the abscess burst through the anterior abdominal parietes, in fifteen it entered the cæcum, in eight the general peritoneal cavity; in two instances each it made its way respectively into the thorax, the rectum, and the bladder.

By an examination of the fatal cases Fitz shows that no less than 68 per cent. die during the first eight days, and that two-thirds of

these die between the fourth and eighth days inclusive. This analysis refers to cases of suppuration following trouble in the appendix.—*British Medical Journal*, Nov. 9, 1889, p. 1030.

60.—THE CLINICAL MANIFESTATIONS OF TYPHLITIS.

By FREDERICK TREVES, F.R.C.S., Surgeon to the London Hospital.

The general clinical phenomena of typhlitis are clearly enough drawn. At the outset, however, of a consideration of the clinical features of the trouble a discrepancy appears as to the gravity to be attached to the disease considered as a whole. On the one hand, the utterances of certain surgical writers leave the impression that the disorder is of the very gravest character, that it is attended by a high mortality, and that the prospects of recovery lie mainly within the possibilities of a surgical operation. On the other hand, there are physicians who would lead us to suppose that typhlitis is an affection of no great gravity, and that it can be successfully dealt with by medical measures alone. In the discussion which followed the reading of my paper on the treatment of relapsing typhlitis before the Royal Medical and Chirurgical Society in 1887 a physician of great experience—Dr. Hare—stated that “he had met with a good many cases of typhlitis, but he ventured to say that none had gone to a point requiring surgical interference.” Both positions are tenable, or, in other words, typhlitis is met with under very varying degrees of severity. Typhlitis may be divided into three classes:

1. The mild form of the trouble. This, as hospital records show, is the commoner variety of typhlitis; is a form which usually ends in resolution, and is amenable to simple medical measures. It would appear to be usually that variety which depends upon fæcal accumulation in the cæcum, or, at least, upon the lodgment of some irritating matter in that bowel. Stercoral ulcers result, lead in due course to some peritonitis in the serous membrane about the caput coli, and the phenomena of typhlitis are present.

Comparing this form with the severer variety next to be described the following points may be enunciated:—The trouble is more common in males than in females, although the proportion is not so marked as in the severer variety. The patients are mostly young adults. Thirty-six per cent. are under 20; 21 per cent. are over 40. In perforating appendicitis 50 per cent. are under 20 and only 9 per cent. over 40 years (Fitz). The patients are usually the subjects of constipation and have passed scybala; or they may be suffering from the diarrhœa induced by the presence of scybala (colitis). The pain appears suddenly, but is on the whole less severe than in the graver form. There is seldom any rigor, the fever is not so high, the vomiting not so marked, and the pain is less apt to radiate to distant parts, for example, to the

thigh or testis. The tenderness is perhaps less pronounced; the tumour appears earlier—possibly from the first—it is comparatively large, is apt to be doughy, and to feel less fixed; it cannot so readily be made out through the rectum. Bladder troubles are usually absent. The inflammatory symptoms gradually subside, and the attack passes off—so far as its acute symptoms are concerned—in from three to seven days. It is impossible to be emphatic in these distinctions, nor can it be urged that some of the severest forms of suppurative typhlitis do not occasionally commence with quite mild symptoms. The continued absence of the local signs of suppuration as time advances is a noteworthy point, however, to which considerable importance must attach.

This form of typhlitis yields readily to medical treatment, and is the form which physicians have in mind when opposing surgical interference in this disease. With this milder form of typhlitis must be included also a large number of cases in which the mischief is probably in the appendix, and in which the symptoms are not severe and end in resolution. In some of such cases it is possible that the appendix becomes practically obliterated. I have frequently found in the post-mortem room a shrunk appendix, buried among adhesions, in patients who have had no severe attack of abdominal trouble during life.

2. The severer form of typhlitis leads to suppuration, and nearly always depends upon some trouble commencing in the appendix. The sex and the age of those who are most usually the subjects of this malady have been alluded to. The symptoms, generally speaking, are more severe and progress more rapidly. There is often an initial chill or rigor. The condition cannot usually be associated with any preceding constipation or digestive disturbance. As a matter of fact, the state of constipation does not favour the lodgment of foreign bodies in diverticula of the bowel. There is in not a few of the cases a history of cold, or possibly of injury. The pain is severe, the vomiting marked, the tenderness and other signs of peritonitis pronounced. The fever is usually high. The tumour is slower to appear; can often be made out through the rectum, and, when felt, is demonstrated to be fixed. The pain is apt to radiate, to spread to the testis, thigh, or perineum, and to be associated with tenesmus and disturbances of micturition. Pain on moving the right thigh is often marked. The local swelling or the area of dulness take on the phenomena attending suppuration, and, at a varying period from the commencement of the trouble, evidences of pus are distinctly present. The symptoms just detailed are subject of necessity to great variation. The very first manifestations of disease may be those of perforation, and the patient may be in a dying condition in forty-eight hours, or even less. On the other hand, the symptoms may be latent or unaccountably delayed. Buck reports that a sailor was at work rolling barrels of

flour till the day of his admission to the hospital. He then had a prominent fluctuating iliac tumour, extending along the outer half of Poupart's ligament. Another sailor left Portland (U.S.A.) for New York, and arrived five days later. In the meantime he purged himself, in consequence of right iliac pain. Although suffering, he kept at work during the following week. He then left for Boston, where he arrived on the thirteenth day after the beginning of the pain. Symptoms of general peritonitis were evident, and he died the next day. A gangrenous appendix was found lying in the cavity of an iliac abscess. (Fitz.) It is in this form of typhlitis that a prompt and definite surgical treatment is distinctly indicated.

3. Under the last variety are included the cases of relapsing typhlitis. This usually depends upon some trouble in the appendix, which falls short of producing suppuration. If an abscess has formed, and the patient has recovered, he is not likely to have other attacks. With the evacuation of the abscess, the cause of the trouble has been probably removed; the faecal concretion or the foreign body has been discharged, or the offending appendix has been destroyed by gangrene. The simple form of typhlitis (the stercoral form), dealt with in the first of these three divisions, is apt to relapse if the conditions which originally produced it are themselves reproduced. The trouble, however, retains its primary character, and the repetitions are few, and possibly limited to one occasion.

In the relapsing typhlitis, due to appendix troubles, the attacks return with vigour. They may be, and usually are, quite independent of constipation, and burst out even while every care is being taken of the patient's health. They are apt to increase in severity, and to leave the patient weaker after each repetition. The pathological condition which usually underlies this form is as follows:—The trouble is due to a retention of mucus within the vermiform process. The appendix is found twisted or bent upon itself, or held down at an angle by adhesions, or its lumen has been nearly occluded by cicatrisation after ulcer. The end of the process is found to be enormously distended with mucus, and often to be singularly hard. In one case in which I exposed such an appendix by operation, I found its extremity so large, so hard, and so rounded that it appeared as if it contained a concretion. The tube was bent upon itself, and, on setting it free, the mucus escaped, and the resemblance to a concretion vanished. There is no stone nor foreign body in these cases. The distended appendix sets up a certain amount of peritonitis, in time it relieves itself, and the patient enters a quiescent period, which may or may not precede another attack. In other and less frequent examples a foreign body has been found which had induced two or possibly more attacks before it caused suppuration. In one case the patient, a

gentleman aged 19, under the care of Dr. Phillips, of Tickhill, had fourteen attacks of typhlitis between November, 1887, and March, 1889. The appendix, when exposed during a quiescent period, was found to be bent upon itself and distorted, and held down by a complex mass of tough adhesions. The cæcum was sound, and no evidence of suppuration existed.—*Ibid*, p. 1031.

61.—TREATMENT OF TYPHLITIS WITH SUPPURATION.

By FREDERICK TREVES, F.R.C.S., Surgeon to the London Hospital.

In the treatment of that variety of typhlitis in which suppuration is expected to occur or to have occurred, surgical measures stand pre-eminent, and in their application a careful judgment must be exercised. It is to be assumed that in every instance rest will be insisted upon, opium given, the colon cleared by an enema, and the diet reduced to starvation limits. Opium should be given in the smallest efficient doses. If recklessly administered it is apt to mask the symptoms to an undesirable degree. It may be anticipated that an incision will have to be made to meet the simple surgical principle, *ubi pus, ibi evacua*, and in connection with this incision three points have to be considered: *a*, the time at which the incision should be made; *b*, the preliminary use of the exploring needle; and *c*, the site of the incision.

In connection with the first point, it may be said that the use of the knife will very rarely be called for before the fifth day. Indeed, I would venture to think that surgical interference before the fifth day should not be undertaken except in the presence of very emphatic symptoms. The great majority of the operations for typhlitis are performed after the first week. The treatment of this disease by rational and precise surgical methods is a matter of recent years. The older method of practically leaving the malady to itself, and of not opening the abscess until it was about to burst through the skin, may excuse the excessive enthusiasm of some modern surgeons who have gone to the other extreme and advise the use of the knife without compromise and without delay.

Many surgeons of eminence, however, and notably among them Dr. W. T. Bull, of New York, whose admirable work in abdominal surgery cannot be too liberally recognised, are in favour of early interference. Dr. Bull's earliest operation was performed thirty hours after the first symptom. It is urged in favour of early incision that a large number of recorded cases afford examples of an operation performed too late, or of a fatal issue which could have been averted by operation. Such cases exist, without doubt. They afford an argument in support of earlier interference, but do not necessarily imply that the opening of the abdomen within the first forty-eight or seventy-two hours should be the routine treatment of a case of typhlitis. The large number of cases which undergo

spontaneous cure must not be lost sight of, nor can the opening of the abdomen through the muscular parietes over the cæcum be regarded as a trifling procedure. It is urged also that certain cases have ended fatally within the first thirty-six hours by perforation into the general peritoneal cavity. Such cases are, however, comparatively rare; they cannot be anticipated. In not a few of them the very first symptoms were those of perforative peritonitis. When such a case is met with the abdomen should, of course, be at once opened, the perforation dealt with, and the serous cavity well washed out, as is the practice in dealing with other forms of perforative peritonitis. A case of death from perforation within thirty-six hours of the appearance of the symptoms of typhlitis does not afford a legitimate argument for the routine performance of an operation within that period in even the majority of the cases. Some of the milder forms of typhlitis—those which end early in resolution—commence with quite acute symptoms, so that the severity of the symptoms is not alone a test of the need for early operation, although it is true that, in general terms, the more acute the manifestations the greater is the need for prompt surgical measures.

Then, again, it is asserted that the abscess, if left, will burst into the peritoneal cavity and cause death, and that such a termination has been recorded when the abscess contained but an ounce or so of pus. This assertion, also, does not afford an unqualified argument in favour of the early use of the knife. As a rule, the abscess makes its way through the abdominal parietes, and does not burst into the general serous cavity. Dr. Bull himself has shown that in sixty-seven cases of abscess the pus escaped in twenty-eight instances through the belly wall, and that in only eight examples did it burst into the peritoneal cavity. Whilst it is true that small collections of pus have followed the latter course, it is also true that abscesses containing pints of matter have been successfully opened through the integuments some weeks after the commencement of the symptoms of typhlitis.

In this connection it must also be remarked that a very small collection of pus is not easy to discover, and that in not a few recorded cases the early incision has not revealed the collection. It is true that the sooner retained pus can be let out the better, but that aphorism does not guarantee the harmlessness of speculative incisions for matter, especially when the pus is within the abdomen, and in a region the anatomical features of which are liable to great variation. Moreover, it is most desirable that the matter should be well localised, and that the resulting adhesions should have connected the inflamed district directly with the parietes. The later the operation is delayed the most easily and directly can the pus be reached. If a very early incision became the rule it would frequently happen that the matter could not be reached.

without first opening the general peritoneal cavity, and could not escape without first finding its way into that space. Deeply-seated pus is slow to make its presence evident, and in the majority of cases the evidence will not be unequivocal before the fifth day. Should its presence be made clear before that period it is obvious that surgical interference should not be delayed; and it must also be allowed that urgency of symptoms may justify an exploratory incision before the arbitrarily fixed time is reached. With some reserve Dr. Bull's dictum may be accepted: "The more rapid the development of symptoms the earlier should the surgeon interfere."

The exploring needle has been extensively employed by American surgeons, but, in spite of their advocacy, I think that its use is to be strongly condemned. This needle is thrust into the iliac region of the abdomen to the depth often of three or four inches, is passed in different directions, and is sometimes introduced three or four times at one sitting. Its object is to discover pus. In the first place it may be suggested that deep-seated pus, in sufficient quantity to demand surgical interference, may possibly be diagnosed by other means, and that if an exploration must be made it would be safer to trust to a cautious incision than to a series of plunges made in the dark.

The best situation for the incision cannot be settled in an arbitrary manner. It should be placed over that part of the inflamed area which appears to cover the seat of suppuration. This can be usually fairly well made out during an examination under ether, provided that such examination include a digital exploration through the rectum. It is desirable that the pus should be reached by the shortest route, and allowed to escape in the most direct manner. The most convenient incision is one made obliquely from above downwards and inwards just external to the deep epigastric artery, ending a little above and to the outer side of the middle of Poupart's ligament, and following the general inclination of the wound made for securing the iliac vessels. An incision made on the right semilunar line will be found, in the great majority of cases, to be inconvenient and to be ill-judged, in so far as it will not permit of a direct evacuation of the pus. A median incision is bad. The pus is localised by adhesions, and so shut off from the general peritoneal cavity. An incision in the linea alba would, except in a very few instances, fall to the inner side of the collection; the general peritoneal cavity would be opened up, and through that cavity the pus would have to be evacuated. The best placed incision is that which leads into the peritoneal enclosure without opening the general peritoneal cavity. In my Hunterian Lectures, and elsewhere, I have drawn attention to the variations in the position of the cæcum and appendix. The situation of the abscess will obviously be influenced by such variations, but any gross deviation can usually be detected by a rectal examination.

Other points in connection with the opening of the abscess remain to be considered. The incision should be free. A careful examination should be made for fæcal concretions and foreign bodies, and a search should be made for the appendix, and its condition, if possible, be determined. These investigations should be conducted with the greatest care, the frail character of the abscess wall should be borne in mind, and regard be paid to the fact that it will be made up of fresh adhesions, and often of loosely attached coils of bowel. The careless introduction of the finger may break down important adhesions, and may cause a perforation into the general peritoneal cavity, or, failing this, may bare a portion of the exposed cæcum of its serous covering. The less that is done after the abscess has been opened the better.

The walls of the abscess cavity should never be scraped, as some advise. The cavity should be well washed out by means of a gentle stream of a weak and warm antiseptic solution directed through an irrigator. A large-sized drainage tube, or a long strip of iodoform or carbolic gauze, should be introduced. If a perforated, diseased, or gangrenous appendix be discovered, a ligature of catgut or silkworm gut should be passed round the proximal part of the process where its tissues are healthy, and be tightly secured. The appendix beyond should then be divided and removed. It is useless under such circumstances to attempt a more elaborate method for removal. The condition of the organ and of the surrounding tissues forbids a more precise surgical procedure. If the appendix be entirely gangrenous, or be perforated close to its point of origin from the cæcum, it had better be left untouched, and in such cases I think no attempt to apply a ligature should be made. When the process is very adherent it is undesirable to make any determined attempt to remove it by dissection, or even by gentle tearing. It will probably do best if it be left quite alone. The anatomical details of the abscess cavity, moreover, are not always clear. In one case, in which I found an inch or so of a dilated ureter exposed in the walls of the abscess, it was not difficult to understand that the urinary tube might be mistaken for the vermiform process, and dealt with under that impression. The opening of the abscess is the main thing; dealing with the appendix is a secondary matter. If the appendix be at once discovered, and can be dealt with readily and simply, it is well, but persistent attempts to remove the process at all costs are to be strongly condemned.

The pus from these abscesses is occasionally healthy, but it is more usually foetid. If actual fæcal matter is present, it will indicate a direct opening into the cæcum. When a perforation of the cæcum is discovered in the depths of a typhlitic abscess, I believe it will be wiser to make no immediate attempt to close it by operation. The margins of the opening will be thinned and pro-

bably in a sloughing condition, and the serous covering of the gut will have been destroyed. No condition could be less favourable for a plastic operation—for the careful closure of the opening by sutures. The condition will probably be made worse by a more elaborate procedure involving a resection of the cæcal wall forming the margin of the perforation. These fæcal fistulæ, if studiously left alone, more often close spontaneously than remain patent, and especially is this the case if every possible care is taken to keep the abscess cavity perfectly drained and frequently irrigated.

Cæcal fistulæ are very difficult to deal with by operation, no matter at what stage the attempt at closure is undertaken. On the other hand, their tendency to close spontaneously under careful treatment, both as regards local measures and the care of the patient's diet and bowels, is very noteworthy.

The treatment of cases of relapsing typhlitis by removing the appendix during the period of quiescence offers, probably, more admirable results than are to be obtained in the treatment of any other form of the disease. I first performed this operation in 1887, and have elsewhere very fully dealt with the circumstances and details of the procedure. In these cases the patients had had three or more severe attacks of typhlitis. The relapses had occurred in spite of every possible care. The pathological condition discovered was such as has been already described. One patient had passed into the condition of a chronic invalid, and had been confined to bed for some months; others were anticipating with dread the repetition of the attack. In one case notably the patient had had three attacks; they had been of increasing severity, and the prospect of his surviving a fourth attack had become a legitimate question. In this instance an enormously-distended appendix was discovered, with a deep ulcer in its wall, and the train laid for an outburst of perforative peritonitis. Before the operation the position of the diseased appendix will be made out, if possible. Its position might have been indicated during one of the attacks.—*Ibid*, p. 1032.

62.—SYMPTOMS, DIAGNOSIS, AND COURSE OF VOLVULUS.

By NICHOLAS SENN, M.D., Ph.D., Professor of Surgery in the Rush Medical College, Chicago.

Primary volvulus is of sudden occurrence, and when located anywhere above the ileo-cæcal valve it is usually attended by severe pain and other symptoms of acute obstruction. Vomiting is a prominent symptom in volvulus of the small intestine, but is often entirely absent when the colon is the seat of the twist.

Poppert (*Archiv f. klin. Chirurgie*) reports a case of volvulus of the sigmoid flexure, which had become twisted 180° around its mesenteric axis, where vomiting never occurred from the begin-

ning of the attack to the fatal termination. He also refers to the statement made by Roser, that in cases of volvulus of this portion of the colon vomiting is a late symptom, or may be entirely wanting. Treves found that this symptom was absent in three out of twenty cases of volvulus which he collected.

In Poppert's case it was shown during life, by the introduction of an elastic tube through which the organ was washed out, that the stomach was empty or nearly so. In volvulus of the sigmoid flexure the pain is often referred to the umbilical region and not to the seat of the obstruction. A circumscribed area of tenderness over the surface corresponding to the circumference of the twisted loop is an early and well-marked symptom. A volvulus once fully developed gives rise to complete obstruction, the violent peristalsis above the seat of obstruction only aiding in rendering the occlusion more complete. Diffuse peritonitis is never met with in cases of volvulus unless it has developed in consequence of gangrene or perforation. Localized plastic peritonitis is, however, of frequent occurrence, commencing in the twisted mesentery and extending from here to the intestine. Such adhesions in cases where a number of loops are implicated in the volvulus, or where knotting of the intestine has taken place, frequently offer serious difficulties in effecting reposition, and after successful reposition tend to reproduce the volvulus unless provision is made by special measures against such an occurrence. The occurrence of gangrene of the twisted loop is announced by a small, rapid, feeble pulse and other symptoms indicative of septic intoxication. Professor von Wahl (*Centralblatt f. Chirurgie*) has recently called special attention to an important diagnostic sign in cases of strangulation and volvulus. Schweninger's experimental investigations have shown that meteorismus first takes place in the constricted or twisted loops of the bowel, and von Wahl has in a number of cases been able to make a positive diagnosis of volvulus by percussion, by which he located a circumscribed area of tympanites, which, on opening the abdomen, was found to correspond to the site of the twisted and dilated intestinal coil. As this circumscribed tympanites is one of the earliest symptoms, it should be sought for and its significance recognised before general tympanites sets in, as at that time a correct diagnosis is most important in enabling the surgeon to adopt timely measures for successful treatment. As volvulus occurs usually in some portion of the colon or the lower portion of the ileum its exact location can be readily determined by rectal insufflation of hydrogen gas. This diagnostic measure is of the greatest importance and value before general tympanites has set in. If the volvulus is located at the sigmoid flexure, only a small quantity of gas can be introduced, and after the distention of the colon below the seat of obstruction the localized tympanites due to the volvulus will be

found a little higher up in the abdomen, the twisted loop of the bowel having been pushed in an upward direction by the distended colon. If the cæcum is the seat of the volvulus the insufflation can be continued until the entire colon is fully distended, but the gas cannot be forced into the small intestine. The effect of the insufflation under such circumstances will be to widen the abdomen without increasing its prominence. If the volvulus is situated above the ileo-cæcal valve the gas will rush from the colon into the ileum with an audible blowing or gurgling sound, and the distention of the lower coils of the small intestine will cause the hypogastric region to become more prominent. In recapitulation it may be said that the most important symptoms and signs upon which a probable or positive diagnosis can be based are the following: 1. Suddenness of attack. 2. Absolute obstruction. 3. Localized area of tympanites. 4. Permeability of intestinal canal to rectal insufflation of hydrogen gas as far as the seat of obstruction.

A fully developed volvulus is never corrected without direct mechanical assistance, and, if left to itself, invariably results in death from intestinal obstruction, gangrene, or septic peritonitis in a short time. The acuteness of symptoms, and the immediate danger to life, increase as the volvulus approaches the upper portion of the intestinal canal. Death results either from exhaustion owing to the incessant vomiting and defective nutrition, or from the pathological changes which occur in the twisted portion of the bowel; the latter consisting in gangrene affecting the entire loop, or from circumscribed gangrenous spots at the point of greatest pressure, resulting in perforation and septic peritonitis. As the gangrene is the result of pressure or strangulation, its rapid occurrence may be expected when the twist is tight—that is, when the intestinal loop has been rotated once or twice around its mesenteric attachment. Death from any of these causes may occur in a few days, and life is seldom prolonged for more than a week.—*Medical News*, Nov. 30, 1889, p. 592.

63.—ON THE OPERATIVE TREATMENT OF VOLVULUS.

By N. SENN, M.D., Surgeon to the Milwaukee Hospital, &c.

[After expressing his strong conviction that nothing short of laparotomy, except it be inflation with hydrogen gas, can possibly be of any avail for the reposition of the gut, Dr. Senn proceeds to describe the operative treatment of volvulus as follows.]

Treves, in his paper on the Operative Treatment of Intestinal Obstruction (*British Medical Journal*, August 29, 1885), claims that this form of obstruction is only aggravated by forcible rectal injections, as such a procedure will tend to tighten rather than to relax the twist. Of the operative treatment, he says that simple

laparotomy is an unpromising procedure, but that in the future he will make the incision in the median line, puncture the gut, and attempt its reduction; if this fails, or the result appears unsatisfactory, he will evacuate the involved gut through an opening in the summit of the flexure, unfold the volvulus, and establish an artificial anus, using the opening first mentioned for that purpose. The advice here given I should like to modify by the following suggestions: 1. Never to puncture the gut. 2. Substitute intestinal anastomosis for the formation of an artificial anus. 3. Evacuate not only the twisted loop, but also the bowel for some distance on the proximal side. The strictest antiseptic precautions are urgently indicated in the surgical treatment of volvulus, more particularly if the operation is performed before gangrene or perforation have occurred, as in such cases the surgeon has to deal, in the majority of cases, with an aseptic peritoneal cavity. The stomach and intestine below the seat of obstruction should be thoroughly evacuated before the anæsthetic is administered.

Incision.—A median incision should always be preferred, even if it has been determined beforehand that the volvulus is located at the sigmoid flexure. The first incision is made sufficiently long to permit the introduction of the hand for the purpose of making a brief manual exploration of the abdominal cavity, with a view to determine the existence and exact location of the volvulus. If the cæcum is found distended, it is proof positive that the volvulus is located at the sigmoid flexure. A brief examination of the sigmoid region, if the volvulus is located here, will show that the bowel composing the volvulus is more distended than the remaining portion of the colon, and the twist in the mesentery can usually be felt and recognised without any difficulty. In cases of volvulus above the ileo-cæcal region, the colon will of course be found collapsed and empty.

If the probable diagnosis of volvulus has been confirmed by this manual exploration, or if, after the examination of the most important landmarks in determining the location of the obstruction, no positive conclusions can be reached, no time should be lost in enlarging the incision sufficiently to permit of ready evisceration. As the intestines are usually found greatly distended, it is of the greatest importance to support them well and to keep them covered with moist warm aseptic compresses, so as to prevent injury, especially at the points where they come in contact with the sharp margins of the abdominal incision. The twisted portion of the bowel, on account of its greater degree of distention, will be among the first loops to escape, and it is thus made easily accessible to direct treatment.

Reposition of Volvulus.—Intra-abdominal reposition of a volvulus is not a feasible procedure, hence the necessity of making a large incision and bringing the twisted bowel within reach of sight and

direct manipulation for the purpose of dealing more efficiently and safely with the displacement. The danger incident to a few moments' exposure of the intestines is more than counterbalanced by the risks which attend attempts at replacement through a small wound with the abdomen often distended to its utmost by dilated intestines with congested and fragile walls. Reduction is easily accomplished in recent cases without adhesions, and it is not difficult if the adhesions are of recent date. The intestinal loop is rotated in an opposite direction from that of the twist until the unfolding is completed. As a rule, the segment of bowel of which the volvulus is composed contains but little solid or fluid matter, but is distended to its utmost by gas which has been generated within it by putrefactive or fermentative changes since the accident occurred. If there is any difficulty encountered in the unfolding of the distended loop it is advisable to empty the bowel by an incision at least an inch in length, made parallel to the intestine and on its convex side, as through such incision not only the twisted portion but the intestine above the seat of obstruction can be emptied of its contents—a matter of great importance in such cases. After the bowel has been washed out with a warm solution of salicylated water further escape of intestinal contents is prevented by an assistant compressing the wound during the time the surgeon is engaged in correcting the twist. I believe it is absolutely necessary to incise the bowel in every instance where the abdomen is opened for the purpose of reducing a volvulus. Before the incision is made, it may be necessary to place the patient on his side to enable the operator to draw the bowel beyond the rest of the intestinal coils, so that after the incision has been made the intestinal contents can escape into a receptacle without coming in contact with the prolapsed intestines. This position is to be maintained until the intestinal contents which have accumulated about the seat of obstruction can be poured out through the incision. This pouring-out process is accomplished by seizing the highest loop which it is deemed necessary to evacuate, and, by raising it, pouring the contents by the force of gravitation from loop to loop until the incision is reached. I even deem it an excellent plan not only to evacuate as much as possible of the intestinal contents, but also resort to irrigation of the bowel through the incision with a weak warm solution of salicylic acid. Such thorough evacuation of the bowel at and above the seat of obstruction accomplishes three desirable objects: 1. It facilitates the replacement of the intestines into the abdominal cavity. 2. It directly unloads the distended parietic intestine, and thus favours the return of peristaltic action. 3. It exerts a potent influence in preventing putrefactive and fermentative changes in the intestines after the operation. Before the bowel is returned the incision is closed in the usual manner by Czerny-Lembert sutures. If one or more

circumscribed points of gangrene are found they should be buried by suturing over them healthy peritoneum when the bowel is returned, with a fair expectation that after removal of the strangulation the gangrene will not extend. If large portions of the intestines or the entire loop show evidences of gangrene, enterectomy has become an unavoidable evil. If, as is usually the case in such instances, the patient is in a collapsed condition, no time should be lost in the restoration of the continuity of the intestinal canal by circular enterorrhaphy, as the same object is attained in a much shorter time by closing both ends of the intestine, and making a lateral apposition by means of decalcified perforated bone disks.

Intestinal Anastomosis.—Cases may occur where it will be found impossible to unfold the volvulus without tearing the bowel, and the question arises, Is it best to resect and suture the ends of the intestine, or to leave the volvulus and establish a communication between the intestine above and below the obstruction? An intestinal anastomosis between the intestine above and below the volvulus by means of decalcified perforated bone disks can be done in a few minutes, and at once restores the continuity of the intestinal canal. If such a procedure is chosen in the treatment of an irreducible volvulus, it becomes necessary to make provision for a permanent outlet of the contents of the isolated segment of the intestine which constitutes the volvulus, as the obstruction of both ends of this portion may prove to be permanent. This can be accomplished by making a second anastomosis between the apex of the volvulus and an adjoining intestinal loop in preference to a loop below the seat of obstruction. Such a procedure will establish with but little additional risk a permanent fistulous opening between the twisted portion of the bowel and the fæcal circulation, and will prevent any danger that might arise from over-distention and perforation should the obstruction caused by the volvulus remain permanent. In making intestinal anastomosis the lateral apposition with the bone-plates should be preceded by thorough evacuation and disinfection of the intestine. As a matter of precaution a continuous suture, embracing the serous and muscular coats, can be applied around the margins of the disks, thus obliterating the grooves between their margins. In order to hasten plastic adhesions the serous surfaces which are to be coaptated should be freely scarified.

After the reduction of a volvulus has been accomplished by operative measures, it is desirable to protect the patient in the future against a possible recurrence of the same accident in the same place. As an elongated mesentery plays the most important rôle in the production of volvulus, this can be done in a few moments with certainty and safety by shortening the mesentery. Resection of the mesentery is out of the question, as such a procedure would in all probability result in gangrene of a corresponding

portion of the intestine. Shortening of the mesentery, however, can be effected by folding the mesentery upon itself in a direction parallel to the bowel and suturing the apex of the fold to the root of the mesentery. By this method the floating bowel is firmly anchored and a recurrence of the volvulus is made impossible. The indications for flushing the abdominal cavity and for establishing drainage are the same as in laparotomy for other forms of intestinal obstruction.—*Medical News*, Nov. 30, 1889, p. 594.

64.—ON THE RESULTS OF LUMBAR COLOTOMY.

By THOMAS BRYANT, F.R.C.S., Vice-President of the Royal College of Surgeons of England.

I have performed lumbar colotomy in 170 cases, and all but ten were on the left side. One hundred of these were urgent cases; and the operation was undertaken to ward off impending death: of these fifty-five were successful, and forty-five sank within the month. These last are the cases I have described as "too late cases," since it is fairly certain that if the operation had been considered and undertaken at an earlier period of obstruction, and before death stared the patient in the face, many months of life would have been given to each sufferer, and much severe distress would have been saved.

LUMBAR COLOTOMY CASES FOR CANCER.

One hundred urgent cases, of which fifty-five were successful.

45 died within the month (too late cases).

- { 18 died within twelve months.
- { 19 lived between one and two years.
- { 12 lived between two and three years.
- { 6 are now alive—3 between two-and-a-half and five years after operation; 1, six years.

Seventy not urgent cases.

Not one died within the month.

18, or 15 per cent., died within twelve months.

24, or 34 per cent., lived between one and two years.

16, or 22 per cent., lived between two and three years.

12, or 17 per cent., are now alive, and 8 of these from two to six years after the operation.

38 per cent. of the whole number have survived the operation from two to six years.

Of the fifty-five successful urgent cases, eighteen, or about one-third, survived the operation a variable number of months, but died within the year; another third lived between one and two years; twelve lived from two to three years; six are now alive, three, two and a half, and three years respectively after operation, and one, a lady aged seventy-one, upon whom I was persuaded to operate nearly six years ago with the sole view of giving relief to

the agonising pain she was enduring. She was so feeble that I never thought it possible she could live many hours; by good nursing and the careful guidance of her medical attendant she, however, made an uninterrupted recovery, and is now apparently well and suffering but little from her rectal disease.

Seventy cases were operated upon before obstruction threatened life and with the object of giving relief to the constant effort to pass stools and to the pain which was associated with it. Not one of these cases sank from the operation; all convalesced and expressed themselves as grateful for the relief which the operation had afforded. When death came it was painless and from exhaustion—euthanasia. Eighteen of these cases, or about a fourth of the whole number, died within twelve months. Twenty-four, or about one-third, lived between one and two years. Sixteen lived two and three years. Twelve are now alive, eight having survived the operation from two to six years. Another ten or more cases which have been operated upon during the last twelve or eighteen months are alive and going along comfortably. These are not included in the above list.

I should say that in at least three-fourths of the patients who convalesced from the operation and experienced its benefits the artificial anus was a success—that is, that the whole of the fæces were discharged through it, and the local disease was left unirritated by the passage of fæcal matter. In the remaining fourth this desirable result was not secured, and fæces at times—particularly when they were liquid—passed downwards, and added to the local irritation of the obstructing disease. Relief was, however, afforded to all these patients by the use of cleansing enemata, injected sometimes from the rectum below, and sometimes from the artificial anus above, and the subsequent introduction of a sedative suppository through either anus.—(*Bradshaw Lecture.*)—*Lancet*, Dec. 14, 1889, p. 1212.

65.—ON THE COMPARATIVE ADVANTAGES OF LUMBAR AND ILIAC COLOTOMY.

By THOMAS BRYANT, F.R.C.S., &c.

[Mr. Bryant concludes his Bradshaw Lecture on this subject with the following series of propositions.]

1. For the iliac operation to be a success, the large bowel should not be loaded with fæces, the abdomen be by no means tense, and the symptoms of obstruction far from urgent; since under opposite conditions (such as those too commonly met with) its supposed advantages would hardly be demonstrated. The searching for the bowel would, moreover, be a serious difficulty; the free manipulation, extrusion, or excision of the bowel which is advised would be unsafe even if practicable, and the necessity of having to open the bowel upon its exposure would, when called for, add

to the dangers of the measure. The iliac operation consequently would appear to be applicable to only a small class of cases. If, then, it can be said that iliac colotomy is an easier operation than the lumbar, when the large bowel is empty, the abdomen flaccid, and the symptoms of obstruction unpronounced, it can without hesitation be asserted that with a distended abdomen and colon and urgent symptoms the lumbar operation is the simpler of the two.

2. To search for the colon in iliac colotomy performed upon a patient with an undistended abdomen and free from all urgent symptoms may neither be difficult nor dangerous; but with the opposite condition, in which the bowel is damaged above the immediate seat of disease from prolonged obstruction, danger must exist, and such a danger must be added to that which appertains to the peritoneal wound. In lumbar colotomy neither of these dangers has to be met; such searching for, extrusion, and dragging outwards of the colon as is considered to be essential in the iliac operation is never requisite, since the spur which is considered to be so essential to guard against the passage of fæces past the artificial opening in the iliac method can in the lumbar be obtained by far simpler means.

3. The prolapse of the bowel at the artificial opening which has been adduced as an objection against lumbar colotomy does not rightly or of necessity belong to it. To judge by my own experience, it is imaginary. In the iliac operation the objection is admitted, and sought to be remedied by an operative measure which is in itself of far greater magnitude than any lumbar colotomy I have ever done or seen.

4. The fear of an abnormality of the colon rendering the operation of lumbar colotomy a failure is practically groundless. I have known it to occur but once in my own practice, and in that case the patient suffered no harm. Such a fear, therefore, need in no way tell against the lumbar measure.

5. The greater convenience of the iliac over the lumbar wound for toilet purposes may at first sight seem plausible, but this apparent advantage is more than counterbalanced by the greater difficulty that exists in keeping any dressing or compress in position over the anterior opening to prevent the escape of the intestinal contents than is ever experienced over the lumbar.

6. The final conclusion is, therefore, clear that iliac colotomy is not yet proved to be superior to the lumbar operation. In doubtful cases, in which an exploratory incision is required for diagnostic purposes, it may be useful, but such cases are very few; in all others, lumbar colotomy has advantages which stamp it as the better measure. The single advantage that I can see in the adoption of the iliac method is that the question of operative interference will have to be taken into account at a far earlier period of the patient's trouble than it has been hitherto the custom to con-

sider the propriety of the lumbar operation; if so, we may soon see the valuable operation of lumbar colotomy take its right place in the practice of surgery, and good may come out of a fashion which has certainly not been a universal success.

I regret to say that the notes of my cases are not sufficiently full to allow me by statistics to support a valuable remark by Mr. Jessop, in his instructive paper on the Treatment of Cancer of the Rectum at the Leeds meeting of the British Medical Association in August last, although I am convinced that upon the whole he is right, and "that in cancer of the lower half of the rectum we have not much fear of the occurrence of complete stoppage, and that that which occurs may in the majority of cases be got over for a time by injections, the introduction of the finger, or of bougies, the use of laxatives, and the like; but that where the upper portions of the rectum are involved, complete blockage is almost certain sooner or later to appear." Mr. Jessop's explanation of this fact is also doubtless correct, and it is found in the anatomical relations of the upper and lower portions, for whereas the rectum as it approaches the outlet becomes more closely applied to the sacrum and pelvic wall, in its superior portion it is comparatively free, and thus the contractile action of the colon above is exerted with effect in forcing the contents through a contracted ring where that ring is fixed and immovable; whereas, when the narrowed portion is free, movable, and not attached, as it is when seated in the upper portions of the rectum, the efforts of the bowel above succeed only in invaginating or otherwise displacing the growth, often so as to enable us to make a complete diagnosis by bringing the disease within reach of the finger, and fail altogether in effecting any onward movements of the contents.

In cancerous disease of the lower part of the rectum colotomy is, therefore, called for more for the purposes of relief of local distress than for pressing obstruction; whilst in the cases of cancer of the upper part of the bowel, the same treatment is called for, again using Mr. Jessop's words, "as soon at least as the first symptoms of impending blockage appear, and in time to anticipate those further changes upon which the mortality of colotomy so much depends."—*Lancet*, Dec. 14, 1889, p. 1215.

66.—A CASE OF GASTRO-ENTEROSTOMY WITH THE AID OF DECALCIFIED BONE PLATES.

By T. KILNER CLARKE, M.A., F.R.C.S., Surgeon to the
Huddersfield Infirmary.

According to the tables published by Mr. Herbert Page, gastro-enterostomy has been performed thirty-six times with twenty-one recoveries. Of the English cases, three in number, Mr. Barker's and Mr. Page's recovered, and lived some considerable time; Mr.

Jessett's died on the tenth day, not from the operation, which was perfectly successful, as the post-mortem examination showed, but from kinking of the bowel occurring five days after operation. The following case is the first, I believe, which has been done by means of the bone plates.

J. C., aged 48, pattern weaver by trade, an anæmic, emaciated, slightly built man, consulted me on September 17th. He stated that his illness began fourteen weeks before with pains in the small of the back, between the shoulder-blades and under the middle of the sternum; that he had vomited all solid food since the beginning of his illness, and had lost much flesh and strength. On examining the abdomen, I found a movable tumour, two inches and a half in the horizontal diameter by one inch and a half in its vertical, reaching as low as the navel, four-fifths of it being on the right of the middle line. Attached to it was the dilated stomach, stretching downwards to the left. This tumour existed in all probability before giving rise to any marked symptoms, as his medical attendant, Dr. Orr, had discovered it in the early part of his illness. Diagnosing the case as one of cancer of the pylorus, I advised an exploratory incision and further operation if the diagnosis proved correct. I operated on September 20th, assisted by Dr. Orr, Mr. Dyson, and Dr. Scougal, who gave the anæsthetic, which was one part chloroform and two parts ether.

Carrying my incision, three inches in length, in the middle line to the level of the lower edge of the navel, I came down at once on the thickened and enlarged pylorus. The next step, and the only difficult part of the proceeding, was to get hold of the jejunum. The way to make certain of this is to follow with the finger the gut from the duodenum downwards until it can be readily pulled out of the abdominal cavity. Pulling the bowel out of the wound I emptied by gentle pressure about four inches of it, and isolated this by means of two ligatures of rubber tubing passed through the mesentery at its attachment to the bowel. The gut was then opened to the extent of an inch, the opening washed clean, bleeding points stopped, and the decalcified bone plate slipped inside and fastened in position by its attached threaded needles. A portion of the stomach was then pulled out of the abdomen, and the second plate was fixed in position, about one inch and a half from the pylorus and the same distance from the greater curvature. The two plates were now placed in apposition, and the corresponding threads of fine Chinese silk tied. A few Lembert sutures of catgut were introduced round the edges of the plates and the parts were returned into the abdomen. Before closing the abdominal incision, I carefully spread out beneath it a layer of omentum. No toilet of the peritoneum was needed, and cleanliness was the only antiseptic. The wound was dressed with Gamgee tissue, and a thick pad of towel bound firmly over it.

The patient's condition when put back into bed was good. An enema of beef-tea and brandy was given. The subsequent progress of the case was as follows:—September 21st. Patient's condition very good; very little pain. Pulse 86; temperature 98.4° ; is being fed by nutrient enemata. September 22nd. Removed the thick pad, and began feeding by the mouth with wine, whey, and veal broth. Pulse 84; temperature normal. September 24th, 10. a.m. Abdominal wound healed, stitches removed. Pulse 84; temperature 98.4° . Passed a good formed motion: taking plenty of fluid food. 3 p.m., attack of dyspnoea. I did not see him till 10 p.m., when I found his temperature 101° and pulse 120, and the heart's action feeble and intermittent. There was dulness of the lower half of the right lung and tubular breathing at the base. I ordered poultices and ten drops of tincture of digitalis, with acetate of ammonia and nitrate of potash, every two hours. September 27th. Much better; says he "feels a young man again." Sputa offensive; ordered carbolic acid to be sprinkled all over the room. September 29th. Pulse 72; temperature 98.4° ; less sputa; cough troublesome at night. Wound gaping somewhat. Ordered egg and stale teacake. October 2nd. Doing well. Cough slight and sputa scanty. Has taken during the last twenty-four hours—milk two pints, beef-tea one pint, with Valentin's beef-juice; fish, bread and butter, an egg, and bitter beer. October 11th. Feels to be gaining strength; complains that solid food causes flatulence and discomfort; no vomiting since the operation, very little sputa or cough. October 29th. Doing very well, and gaining flesh and strength.

The points to be more especially remembered and those in which it would be most easy to err in doing this operation are: (1) to bring plenty of stomach outside the abdomen, so that the assistant may grasp it easily and without stretching it, behind the plate when the latter is *in situ*; (2) to have some six inches of intestine outside when making the connection; (3) not to make too large incisions into the stomach and intestine; and (4) to be careful to tie the rubber tubing very loosely round the bowel. It is, I think, a needless expenditure of time to tie all the bleeding points. A spouting vessel may be tied; the pressure of the plates will stop the rest.

The plates, kindly sent me by Mr. Jessett, were of the following dimensions—namely, two inches and a half long by one inch wide and one-eighth of an inch thick, having an oval opening in the centre three-fourths of an inch long by half an inch wide. It would be a convenience if Messrs. Maw, Son, and Thompson, of Aldersgate Street, who keep the bone plates, would send them decalcified and fitted with Chinese silk.—*British Medical Journal*, Nov. 16, 1889, p. 1089.

67.—ON EARLY OPERATIVE INTERFERENCE IN CASES OF DISEASE OF THE VERMIFORM APPENDIX.

By CHARLES MCBURNEY, M.D., Visiting Surgeon to the Roosevelt Hospital, New York.

The pathological conditions of the appendix, as compared with the symptoms in my own cases, most positively show that one cannot with accuracy determine from the symptoms the extent and severity of the disease. I therefore doubt the safety of the advice given by several recent writers, to watch the symptoms and to be guided by their violence in determining the method of treatment. I should like to refer to some of the special symptoms the weight and value of which have been subsequently determined by an immediate operation, for it is in this manner that we shall mostly advance our knowledge of the pathology of appendicitis. Pain to a greater or less extent is present in all cases of appendicitis, but many a mistake has been made and a golden opportunity lost by looking for pain in the iliac fossa and an *absence* of pain in other parts of the abdomen. General abdominal pain is often all that the patient will complain of during the first few hours of his attack, and in many cases it requires a careful and pointed examination to determine that the cause of the pain is situated in the iliac fossa. But after the first few hours it becomes more and more evident that the chief seat of pain is at that point, and the general pain then usually subsides. The epigastric region is frequently the point first complained of. The *exact* locality of the greatest sensitiveness to pressure has seemed to me to be usually one of importance. Whatever may be the position of the healthy appendix as found in the dead-house—and I am well aware that its position when uninflamed varies greatly—I have found in all of my operations that it lay, either thickened, shortened, or adherent, very close to its point of attachment to the cæcum. This, of course, must, in early stages of the disease, determine the seat of greatest pain *on pressure*. And I believe that in every case the seat of greatest pain, determined by the pressure of one finger, has been very exactly between an inch and a half and two inches from the anterior spinous process of the ilium on a straight line drawn from that process to the umbilicus. This may appear to be an affectation of accuracy, but, so far as my experience goes, the observation is correct. Chill and vomiting are frequent, but so often absent as to be in no sense of much diagnostic value. Fever to some extent is present in all cases, but very different in degree, some severe cases having a temperature on the first day of less than 100.5° , others rapidly reaching a temperature of 103.5° . But, as nearly excluding non-inflammatory pains, the presence of this symptom is certainly of importance. Rigidity in the abdominal muscles, generally much more marked

on the affected side than on the other, I have found very constant, and I believe it to be a sign of value.

Abdominal distension by tympanites varies greatly, and its degree by no means measures the severity of the diseased process. It may be very decided during the very first hours of a mild case, and also entirely absent in the worst form of sudden perforation. It must, of course, be influenced greatly by the condition of the patient's bowels, the ease with which the intestine in each individual is brought to a state of paresis, and by many other causes. But when the gut has been found during the operation to be overdistended, the portion of gut so affected has always been the large intestine. Probably paresis from the local peritonitis is here a large factor.

Tumour of greater or less size I have usually been able to detect at a very early stage, but the composition of this tumour, as shown during operation, has varied greatly. In one case the tumour consisted of the distended unruptured appendix, which was partly wrapped in an inflamed and thickened omentum. In another it was formed of a mass of intestinal coils swollen and glued together by recent plastic exudation. This tumour was large, quite firm, and gave one the impression that a large quantity of pus was present; but only a very minute abscess was found, and that was situated quite beneath the cæcum. But under ether some tumour can invariably be detected; and this agent will, I think, be found to be a valuable help to diagnosis in some doubtful cases. The tumour may be dull on percussion, as when pus has formed and lies against the anterior abdominal wall; but I have more than once found a small deep tumour containing pus, which was so completely covered in front by intestines that the percussion note, before ether was given, was purely tympanitic. The pulse during the onset of appendicitis is usually rapid and irritable. The patient prefers to have the right thigh elevated, and objects to its overextension. Rectal examination at the onset I have not found of any value.

The combination of symptoms present will usually render a correct diagnosis as to the seat of the disease quite easy, but in reference to the stage which the disease has reached—that is, whether pus has formed or not, whether the appendix is already perforated or not, even sometimes whether already general septic peritonitis exists or not—the diagnosis is often very doubtful. I remember one case where Dr. Sands performed a beautiful operation and saved the patient's life. At the consultation held before operation four gentlemen were present. Three of them had certainly seen many cases of appendicitis. Three quite different opinions were expressed. Dr. Sands thought that the appendix was perforated, and that pus had formed. One of the others thought there was probably appendicitis, but advised an extraperi-

toneal incision. Another thought the case so mild that it should be treated without operation. Dr. Sands operated by an incision along the right edge of the rectus muscle, opened an intraperitoneal abscess just in the middle of his incision, and removed a perforated and sloughing appendix. The patient rapidly recovered. I mention it simply to show that the diagnosis of the exact condition in such cases is not easy. A means of diagnosis lauded by some, permitted by others, and totally condemned by a few, is the exploring needle. I believe that the use of this instrument will become less and less frequent as we know more of the disease. While perhaps occasionally permissible at a late stage of the disease, it is certainly totally to be condemned at its beginning. The discovery of pus with the syringe is, to be sure, gratifying to a hesitating operator, but the withdrawal of an injected needle through several layers of peritoneum, which it may have passed during its introduction, can totally nullify a good subsequent operation. And, if the needle does *not* discover pus, which has often happened even when that fluid has been present in considerable quantity, then the man who pinned his faith on a needle is induced to underestimate the importance of the case and its mode of treatment.

[Dr. McBurney, after narrating eight cases of appendicitis, seven of which were successfully treated by operation, proceeds to say:]

I have presented eight cases of appendicitis operated upon at an early stage of *acute* inflammatory process. These eight cases include *all* of those operated upon since May 20, 1888, to date. Previous to May 20, 1888, I had never operated upon a case except by the older methods. During this period of eighteen months I have seen and operated upon a much larger number of cases of appendicitis at late stages in the disease—that is, when extensive abscess has existed, and in some cases of early general septic peritonitis due to appendicitis. Such cases are excluded from the list given, as belonging to an entirely different category. I have measured the stage of the disease, not by the number of hours or even days that it has existed, but by the character and extent of the inflammatory process, all cases being included in the list excepting those where it was clear that large, comparatively safe abscess was forming, or where general septic peritonitis was already established. I should, moreover, state that in every case operation has been done as soon as possible after being seen, excepting that in the fatal case various circumstances, contrary to my wish, necessitated a delay of about twelve hours. In no case has a diagnosis of appendicitis been made which has been subsequently proved by operation to be incorrect. To those who have been in doubt as to whether the operation or the disease carries with it the most danger, I think these cases, although limited in number, must be convincing in favour of the operation. All will acknowledge that every case of appendicitis may, so far

as the cleverest observer can tell, have to pass by many very dangerous obstacles before reaching the smooth water of a comfortable abscess. For my part, I would endeavour to insure safety early, before reaching the rapids, rather than trust to finding my way with my eyes blindfolded through a dangerous passage.

But I should be much misunderstood if I should give the impression that, while I believe the operation to be less dangerous than the disease, I also believe the operation to be simple and easy of execution. I look upon it as often an exceedingly difficult one, and one which requires as much care and patience and attention to detail as any with which I am familiar. Moreover, I have never seen two cases of appendicitis operated upon in which the pathological conditions, the position of adhesions, the relation of surrounding parts, &c., were very nearly alike. Every case presents some new problem, and in every case there is large opportunity for the exercise of careful judgment as to how best to meet this or that difficulty.

Before describing the steps of the operation, I would refer to an important aid to diagnosis, namely, the ascertaining, by the pressure of a single finger-tip, that the point of greatest tenderness is, in the average adult, almost exactly two inches from the anterior iliac spine, on a line drawn from this process through the umbilicus. Much greater tenderness at this point than at others, taken in connection with the history of the case and the other well-known signs, I look upon as almost pathognomonic of appendicitis. This point indicates the situation of the base of the appendix, where it arises from the cæcum, but does not by any means demonstrate, as one might conclude, that the chief point of disease is there. The abscess, or concretion, or cyst may be at quite a little distance, but the greatest pain, on pressure with one finger, will be felt at the point described.

The incision should be a liberal one, for much room may be required, and a five-inch cut in the adult is not too much. It should follow as nearly as possible the right edge of the rectus muscle, and the centre of the incision should lie opposite to or a little below the anterior iliac spine, on a line drawn to the umbilicus. When the external oblique aponeurosis is cut through by this incision, the aponeurotic structure, in which the other abdominal muscles end, comes into view, and is easily divided without cutting muscular fiber. Then the fascia transversalis, the subperitoneal fat, and the peritoneum are cut in succession. If pus has formed close against the anterior abdominal wall, these last-mentioned tissues will be found infiltrated with serum, and even thickened so as to look like cheesy tubercle. Otherwise these parts may appear perfectly normal. On opening the peritoneum the appendix may at once be seen, or adhesions and inflammatory exudations may have so distorted the parts that a careful and

difficult search may be required to find the appendix at all. It may be flattened out and glued firmly to the inflamed surface of the cæcum by old and recent adhesions, or it may be coiled upon itself and buried out of view in a mass of lymph. The finger is often quicker than the eye to detect the appendix in these conditions, as it is very certain to be found where the greatest thickening, as felt by the finger, exists. More than once I have had to turn the cæcum out of the wound and examine carefully the usual region of origin of the appendix before I could identify it. Usually then with the finger or a dull-pointed instrument the adhesions can be broken down or tied off, as may seem required by vascularity. If the appendix has been thus separated, I have usually tied it off with silk or catgut close to the cæcum and cut it away, and generally between two ligatures. Careful disinfection of the stump should be made. I have scraped its interior and disinfected with 1-to-1,000 bichloride solution, and then rubbed in iodoform. Once, where it looked dangerous, I tied with silver wire, and then used the fine-pointed cautery to disinfect. If thoroughly cleansed, it seems to be unnecessary to lose time in sewing the peritoneum over the stump, as recommended by Treves. When the appendix has been removed nothing remains to be done but to disinfect the whole neighbourhood, insert a drain, and pack the small space with iodoform gauze. The upper half of the wound may perfectly well be tightly closed with stout sutures, which should include the whole thickness of the abdominal wall—peritoneum as well. In some cases I believe it to be good practice to introduce a large drain by a separate opening well above and behind the iliac spine, for in some cases the region of disease may extend especially in that direction. But the question may fairly arise in any case as to whether it is wise to attempt to dissect out the appendix and remove it. If the difficulties of dissection would evidently be very great, I think it is better to open the abscess if there is one, cleanse the cavity, and, leaving the appendix *in situ*, pack and drain the wound. The packing I have usually removed on the third day and replaced it with less, and the cavity has rapidly granulated. If, at the time of operation, one introduces sutures throughout the whole length of the wound, leaving the central and lower ones loose, these can subsequently, after one or two dressings, be tied, and the wound thus rapidly narrowed. Over the whole wound, of course, a complete dressing is applied, and good bandaging is better than any binder, to prevent the possibility of extrusion of gut by either vomiting or intestinal distension. None of my patients have developed a hernia at the site of operation. I have kept them all in bed for four weeks or more. None have had any recurrence of inflammatory action of any kind.

Are there any contra-indications to this operation in a clear case

of appendicitis? I think there are. Very great abdominal distension, which might in a given case probably be relieved by a few hours' treatment, would lead me to delay the operation, for expulsion of intestine is a very serious obstacle to the proper completion of the operation without risk. Unusual obesity I should regard as a good reason for a more expectant method of treatment. But the most important contra-indication of all is the absence of any one of the necessary safeguards and aids, such as the best assistance, the best light, and the best appliances for performing a perfectly aseptic operation.—*N. Y. Medical Journal*, Dec. 21, 1889, p. 676.

68.—ON EARLY LAPAROTOMY FOR CATARRHAL AND ULCERATIVE APPENDICITIS.

By NICHOLAS SENN, M.D., Ph.D., of Milwaukee, Wisconsin.

The principal object in writing this paper is to call the attention of the profession to the necessity of treating the primary disease of the appendix by radical measures before the advent of incurable complications, that is, before disease due to perforation has occurred. I believe that in many cases the development of perityphlitis is preceded by a well-marked complexus of symptoms pointing directly to the existence of appendicitis. Many patients suffer from well-defined symptoms indicative of the presence of an inflammatory lesion of the appendix for months and years before it gives rise to a perityphlitis or perforative peritonitis. It is of the greatest practical moment to recognise the exact condition in time, and to anticipate the dangerous and only too often absolutely fatal complications by removing permanently the source of danger which can be done at this time with comparative ease and almost perfect safety by the extirpation of the appendix.

[The narratives of two cases in which the mode of treatment advocated was adopted with complete success, are here omitted.]

Excision of the appendix in such cases must be considered in the light of a curative and prophylactic operation. It is curative, as by it the cause of the disease with the diseased tissues is completely removed, and it is prophylactic, as by it the disastrous consequences of a probable later perforation are positively prevented. Extirpation of the appendix at a time before the inflammatory process has reached the serous coat is one of the easiest and safest of all intra-abdominal operations. The operation is performed in a healthy aseptic peritoneal cavity, and if the customary antiseptic precautions are carried out, healing of the visceral and abdominal wounds by primary intention may be confidently expected. The operation eliminates a structure which if not entirely useless has at most only an unimportant physiological importance.

It may be stated as a general rule, to which there can be but few exceptions, that the appendix should be extirpated in all cases

where from the symptoms and history of the case the existence of a localized destructive inflammatory process can be surmised. From a diagnostic and practical standpoint all cases of appendicitis can be divided into two classes: 1. Acute. 2. Chronic. There can be but little doubt that most, if not all, acute cases are preceded by a chronic lesion. The history of many cases, and the pathological conditions of numerous specimens corroborate this statement. A foreign body, for instance, may be present for a long time without giving rise to serious symptoms, but it cannot remain for any length of time without causing a catarrhal inflammation and superficial ulceration. An ulcerative catarrhal inflammation may exist for a long time before it gives rise to acute symptoms, and when the acute attack makes its appearance the inflammation has reached the peritoneal surface and the connective tissue underlying the appendix and cæcum; it is then no longer an uncomplicated case of appendicitis as the primary inflammation has extended beyond the structures of the appendix, and has given rise to perityphlitis, with or without perforation. Chronic appendicitis is characterized by acute exacerbations of short duration, the attacks of greater or less severity occurring at intervals of a few months or weeks. Between the attacks the patient may be in perfect health, unless the attacks recur with great frequency, when impairment of the digestive functions produces general ill health. The most important symptoms which point to the existence of chronic appendicitis are localized pain and a circumscribed area of tenderness at a place corresponding to the location of the appendix. Simple appendicitis does not give rise to any appreciable swelling as long as the lumen of the appendix remains in communication with the cæcum, as the resistance of the indurated walls is sufficient to force the contents of the appendix into the cæcum. In persons with thin abdominal walls it is possible to feel the hardened and thickened appendix by making deep pressure while the patient is placed in a position that favours relaxation of the abdominal muscles. Tympanites is usually absent unless the appendicitis is complicated by circumscribed peritonitis. Rigidity of the abdominal muscles is absent as long as the inflammation is limited to the deeper structures of the appendix. During the acute exacerbations of the chronic form of the disease aside of the pain the general symptoms are not severe. The temperature is either normal or there is only a slight rise seldom above 100° F. The pulse is only slightly increased in frequency, and shows none of the characteristic features which it presents in peritonitis.

Vomiting is occasionally present, but is not a constant nor even a frequent symptom. Constipation which is usually present is probably more the result of a change in diet, rest, and the medicines taken for the relief of pain than the disease. The frequency of catarrhal and ulcerative inflammation in the interior of the

appendix as compared with the remaining portion of the intestinal tract is probably owing to the anatomical location of this structure. The lumen of the appendix constitutes a cul-de-sac which is in communication with the intestinal canal, but which is virtually excluded from the fæcal circulation, hence it serves an admirable purpose as a reservoir for the collection, localization and retention of pathogenic microbes. That the anatomical location of the appendix acts as a predisposing cause in the etiology of localized forms of infection is evident from the course of the disease.

The inflammatory process remains limited and does not extend by continuity to the cæcum, the extension of the disease being only in a peripheral direction from the mucous membrane to the deeper structures. In conclusion it may be said that recurring attacks of pain in the region of the appendix with a circumscribed area of tenderness over the same point are presumptive evidences of the existence of appendicitis, and if other symptoms and signs point in the same direction treatment by abdominal section is indicated.

As an operation for simple appendicitis always presupposes an aseptic condition of the peritoneal cavity, it is of the utmost importance to secure by thorough antiseptic precautions an aseptic condition of everything that has to be brought in contact with the wound. The incision should be about four inches in length and directly over the centre of the cæcum, and extend to within an inch of Poupart's ligament. With a sharp scalpel the skin, fascia and successive muscular layers are rapidly divided without the use of any director until the peritoneum is reached. At this stage a pause is made in the operation in order to arrest hemorrhage by applying hæmostatic forceps to every bleeding point, the forceps remain until the surgeon is ready to close the wound, when it will generally be found that ligatures are superfluous, as the compression and crushing of the tissues caused by the forceps have been sufficient to arrest the bleeding. By following this plan unnecessary ligation of small vessels is avoided. The peritoneum is picked up by two catch-toothed forceps, and between them the abdominal cavity is opened, and the incision subsequently enlarged to the desired extent between the index and middle finger of the left hand. As soon as the peritoneal cavity is opened the further steps of the operation will be greatly facilitated by packing around the cæcum a small compress of aseptic gauze wrung out of sterilized water for the purpose of preventing prolapse of the small intestines. If the appendix is below the cæcum it will come into sight at once, when it can be examined and directly dealt with. If, as is more frequently the case, it is behind and towards the inner side of the cæcum its size and direction can be readily ascertained by palpation through the cæcum, but to make it accessible to direct examination and operative treatment it is necessary to raise the lower margin of the cæcum.

If the serous coat has not been implicated by the inflammation the only attachment to be separated is the mesentery of the appendix. This is always present, but varies greatly in length and width. If it is attached to the whole length of the appendix it should be ligated in several sections with fine silk ligatures as far as the cæcum. If inflammation adhesions are present they are separated, and all bleeding points carefully tied. When the appendix has been thus completely isolated a ligature of fine silk is tied around its base close to the cæcum, and about a quarter of an inch below it the section is made with scissors.

As the interior of the appendix under such circumstances necessarily must always contain pathogenic microorganisms it is necessary to disinfect the cut surface of the stump thoroughly. This can be done with one of the disinfectant solutions, after which the stump should be dusted with iodoform. After amputating the appendix it has been heretofore customary to drop the stump without making any provision against the possibility of perforation, subsequently taking place at the point of ligation. This I consider a great mistake. The ligature approximates a diseased mucous membrane, and if after the operation the entire stump is not speedily surrounded by a wall of impermeable granulation tissue which is later transformed into a connective tissue capsule, there is great danger that perforation will take place after cutting through the ligature, thus exposing the patient to the same danger he was in before the operation. To obviate the possibility of such an occurrence the stump, after thorough disinfection and iodoformization should be covered with peritoneum by stitching the serous surfaces of the cæcum from both sides over it by a number of Lembert sutures. The serous surfaces will become agglutinated in a few hours, and in a few days the adhesions will have become sufficiently firm to protect the surrounding tissues and the peritoneal cavity against extravasation should leakage take place at the point of ligation. By resorting to this precaution we protect the patient against all possibility of the occurrence of perforative peritonitis subsequently, as the perforation, should it occur, of necessity would take place into the cæcum.

More care is required in closing an incision made through the several muscular layers of the abdominal wall than by going through the median line, as the ordinary way of closing a median incision would be very likely to be followed by a ventral hernia. The peritoneum must be sutured separately with fine catgut or silk sutures, while the remaining sutures are passed down to, but not through, the peritoneum. No provision for drainage is necessary in these cases.

[The dressing of the wound, and the after-treatment are conducted in the usual manner.]

Journal of American Medical Association, Nov. 2, 1889, p. 631.

69.—ON THE TREATMENT OF PROLAPSE OF THE RECTUM BY EXCISION.

By FREDK. TREVES, F.R.C.S., Surgeon to the London Hospital.

[We reproduce here the narratives of the first and third of Mr. Treves's Three Cases, in which this method of treatment was adopted with complete success.]

Prolapse of the rectum is most commonly met with at the two extremes of life—in quite young children and in those who are advanced in years. The frequency of the condition in children is explained by many circumstances, by a very susceptible reflex nerve apparatus, by an uncertain and feeble muscular control, by frequent digestive disturbances, by an unusual activity of the alimentary canal, and by the occurrence of many conditions involving straining, such as calculus in the bladder, phimosis, worms, polypi, scybala in the rectum, and diarrhoea. Moreover, in the infant the rectum lies rather in the abdomen than in the very small and shallow pelvic cavity, and is thus more directly exposed to pressure. The gut also is nearly vertical, and has a comparatively extensive meso-colon, and but loose lateral connections. The sacrum is less curved in the child, and the prostate is small. It is in children, moreover, that intussusception is so frequent, and the conditions which would favour that lesion in one part of the bowel would favour prolapse in another. The ileo-cæcal aperture, about which intussusception is so common, is an internal anus, the anus of the small intestine. Tenesmus is a frequent feature in the developmental periods of prolapsus recti, just as contraction of a segment of the bowel would appear to be a necessary preliminary to invagination. As a pathological circumstance there is probably little difference between the two conditions, except such as depends upon locality. In a sickly child with a feeble muscular system an attack of whooping-cough may lead to a protrusion of the rectal mucous membrane. Mr. Harrison Cripps, in the excellent account of this affection given in his work on "Diseases of the Rectum and Anus," remarks that "in children, in addition to the prolonged straining, the prolapse is often coincident with some weakening illness, which causes absorption of the fat in the ischio-rectal fossæ, together with relaxation of the muscular fibres of the part." In the young prolapsus recti is usually an active and often an acute process. The protrusion may take place suddenly and be attended by violent symptoms. I have seen a child quite collapsed after the descent of the bowel. In the aged, on the other hand, the condition is usually due to gentler causes, is more gradual and more chronic, and may be described as a passive rather than as an active process. The tissues are relaxed, the muscles are enfeebled, and the nerve

apparatus of the anus is dulled and irresponsive. The prolapse is commonly associated with prolonged expulsive efforts, such as may attend stricture, enlarged prostate, constipation, and chronic bronchitis. Two forms of prolapse are described by authors. There is the partial form, in which the mucous membrane is alone protruded, while the muscular coat remains unchanged in position. There is, on the other hand, the complete variety, in which the whole of the coats of the rectum is prolapsed, and in which the lesion concerns not only the mucous and the muscular tunics, but possibly the serous coat also. The very loose connection which exists between the mucous and muscular coats of the rectum greatly favours the development of a partial prolapse, and the pathology of intussusception would render it conceivable that in the complete variety the serous and fascial connections of the bowel may offer but little resistance to the protrusion of the whole of the lower segment of the gut.

“In ‘complete prolapse,’” writes Mr. Harrison Cripps, “after the mucous membrane has slid as far as possible, it drags upon the muscular coat, thus producing the complete eversion of the bowel. It is important, then, to bear in mind that the one form is but an aggravation of the other (the partial variety), and that they both may commence in a similar way.” In the usual description of the complete prolapse, it is assumed that the projecting tumour presents not only a double layer of mucous membrane, but also a double fold of the muscular wall of the bowel. It is inferred also that the position of the internal sphincter remains unchanged, that it still lies in association with the external sphincter, and that the apex of the protrusion is formed by a portion of the wall of the rectum which was normally at some distance above the anus. In the account of the third of the cases detailed below opportunity will be taken to criticise this description.

In the matter of treatment it is needless to say that the majority of the cases of prolapse of the rectum yield to simple measures—to rest, to the removal of the cause of the trouble, to the improvement of the general health, to the regulation of the bowels, and the use of astringent applications. In children the cases must be few indeed in which an active surgical interference is necessary. In the aged the question of a surgical measure may arise when all the usual means have failed, and the distress occasioned by the prolapse is such as to justify an operation. As a matter of common experience, however, the prolapse of the aged often induces so little inconvenience as to call for no radical measure, while the state of the patient’s health is usually such as to forbid any but the most necessary of surgical operations.

The cases now to be described all concern subjects who had not passed beyond the period of middle age; the prolapse in each case had existed for some years, had resisted the milder forms of treat-

ment, and had given rise to very considerable distress. It is in such examples of prolapse of the rectum that treatment by operation is, doubtless, called for.

Case 1.—Alfred H——, a clerk, aged thirty-seven, was admitted into the London Hospital on Jan. 17, 1889, with prolapse of the rectum. The man was thin, feeble, and nervous, and gave a very distressful account of the last few years of his life. The prolapse was first noticed eleven years ago, when it appeared in connection with chronic diarrhoea. For four years it gave him little trouble. It came down usually, but not always, after each act of defecation. It was easily reduced, and he was not prevented from following his employment. Seven years ago the bowel came down while he was stepping into a cab. This was the first occasion on which it had descended independently of defecation. He reduced it with difficulty, and since this period the rectum has given him so much trouble that he has been compelled to give up his occupation. The reduction of the prolapse was attended with increasing difficulty, and the protrusion soon became to a great extent irreducible. After trying various trusses he at last adopted a complicated cone-shaped compress made of linen, which he had worn for the last five years or so. There was nothing in his history that bore upon the case. He had never had syphilis; he had suffered from no urinary troubles and had at no time been the subject of hemorrhoids or of rectal polypi. The prolapse gave him great distress. The action of the bowels was attended with severe tenesmus and exhausting pain. For some years he had habituated himself to passing a motion on a certain day once a week. He prepared himself for this event by a vigorous aperient, and he stated that when the bowels did act he would maintain the squatting position for some hours, and would remain exhausted for the remainder of the day. There was a considerable mucous discharge from the bowel, mixed occasionally with blood. The patient had become quite hypochondriacal. He suffered from extreme depression, his whole being centred upon his prolapse; he had adopted a very exuberant and florid language in describing his symptoms, and his everted rectum appeared to absorb his exclusive attention. The prolapse presented the ordinary appearance, and measured five inches in length. It was composed apparently of mucous membrane only. It could be reduced with difficulty, but immediately reappeared upon the support of the hand being removed.

On January 19th I carried out the following operation. The rectum having been well emptied by an aperient, followed by an enema, the patient was anæsthetised and placed in the lithotomy position. Clover's crutch was employed. The buttocks were well raised, partly for the purpose of bringing the region in more convenient position for operation, and partly that the coils of small intestine might be to some extent withdrawn.

from the pelvic floor in the event of there being any protrusion of the peritoneum. The first step of the operation consisted in demonstrating the full extent of the prolapse. The mucous membrane within the lumen of the prolapse, was seized at some height above the aperture in the bowel, with tongue forceps and pulled down. Three pairs of such forceps were employed, and were applied at different points on the rectal wall; and, when it was evident that the whole of the relaxed mucous membrane was entirely drawn down, the forceps were allowed to remain attached. They served to indicate the real apex of the protrusion, and to allow a hold to be taken of the part, while their weight prevented any great recession of the everted mucous membrane. I now made a circular cut around the base of the prolapse at the exact spot where the skin joined the mucous membrane. The incision involved the mucous membrane only. This mucous membrane I next proceeded to dissect off, turning the whole of it down like a cuff. It was dissected up entirely with scissors and forceps only. When the separation was complete the prolapse had a hour-glass shape, the waist of the hour-glass corresponding to the site of the apex of the protrusion. Nothing but a raw surface was visible, and the prolapse was of course doubled in length. The bleeding was quite insignificant. The object of this dissection was to clearly demonstrate the nature of the tissues forming the prolapse, and which were about to be excised. The external sphincter, much hypertrophied, was now exposed; and within it the internal sphincter could be defined. I now introduced my left forefinger into the lumen of the prolapse, and ascertained that the protrusion was composed of mucous membrane only. This layer of mucous membrane—the inner layer—I next divided at the level of the anus with scissors. As each inch or so was divided the cut margin was seized with pressure forceps. This allowed of the immediate arrest of all bleeding, and also prevented the mucous membrane from being withdrawn into the rectum. The prolapse was in this way completely excised, and some six or eight pressure forceps were left attached to the cut mucous membrane of the rectum. These forceps were removed one at a time. If any bleeding point was noticed it was ligatured with catgut. The mucous membrane was then attached to the skin at the margin of the anus, with sutures of silkworm gut. Eight bleeding vessels were ligatured, and fifteen silkworm-gut sutures were applied.

It will be understood that the piece removed represented the whole of the prolapse unfolded, and appeared, therefore, as a tube of mucous membrane with the epithelial lining inside, and which measured, when stretched out, ten inches. The operation was simple, uncomplicated, and attended with but trifling hemorrhage. The part was dressed with iodoform on wool.

In this case I was tempted to excise a portion of the external sphincter in order to lessen the size of the anus, which, as it appeared at the close of the operation, would have admitted four fingers. I removed about one inch of the muscle and brought the divided ends together with three catgut sutures. This proceeding was unnecessary, and gave rise during the after-treatment to some pain and much tenesmus. I have not since carried it out. The parts were frequently washed with boracic lotion. The sutures were removed on the tenth day. The bowels were opened naturally on the fifth day. The patient recovered without any bad symptom. There was a little incontinence at first, but at the end of a month the part was sound and the function of the anus entirely restored. The patient's recovery was needlessly prolonged and hampered by his nervous condition and his state of mental depression; but the cure of the prolapse was complete.

Case 3.—Richard D——, a sailor, aged thirty-six, was admitted into the London Hospital on Feb. 20th, 1889, with a very large prolapse of the rectum, which proved to be an example of the "complete" form. He had been in command of a small steamboat in the Straits Settlements for the last twelve years. He had suffered from ague and from chronic dysentery. Apart from this he was a strong, healthy, and vigorous man and had never been laid up. He was temperate, gave no history of syphilis, and had never been the subject of either stricture or hemorrhoids. The prolapse was first noticed four years ago, and appeared in connection with an attack of dysentery which was associated with much rectal pain and tenesmus. The bowel at first only came down during defecation. It then came down occasionally when he coughed or greatly exerted himself. During the last two years the prolapse gave him almost constant trouble. It descended from the least cause, and although it could always be reduced, the difficulty of keeping the bowel up had become within the last twelve months almost insurmountable. The nature of the patient's occupation compelled him to neglect the prolapse on many occasions. His chief complaints during the last twelve months have been distressing and most painful tenesmus, loss of control over the anus, the escape of bloody mucus and of fæcal matter, and great irritability of the bladder. On one occasion the patient had to leave the bridge fourteen times in three hours. He spoke of himself as being "nearly ruined in clothes." On account of the little control he had over the anus he was compelled to dine alone and to isolate himself as much as possible. Defecation caused him great distress. The motions during the last twelve months had been shaped "like lead pencils," and had to be squeezed out of the prolapse with the hand. He was at last compelled to give up a lucrative post and return to England. The prolapse was very large, of conical shape, and covered with healthy mucous membrane. The base of

the cone measured no less than ten inches and a half in circumference, and its length was about five inches. When the prolapse was reduced the size of the anus appeared enormous. It remained open and showed little or no disposition to contract. He could retain neither flatus nor fæces, which indeed escaped without his knowledge. The lumen of the prolapse was very small and contracted, and would only admit the finger. When the prolapse had been reduced, and then examined with the finger in the rectum, it felt like a large soft foreign body with a central tube made of cartilage. The prolapse was excised on Feb. 22nd. The patient was placed in the lithotomy position, and the prolapse drawn down to its full extent in the manner already described. The mucous membrane forming the outer wall of the prolapse was now prepared for separation around the entire base of the cone, the knife traversing the skin close to its line of junction with the mucous membrane. This tunic was then separated from the prolapse by the scissors aided by traction, and was everted down to the apex of the cone, as in the previous cases. The protrusion, quite bared of mucous membrane, was now exposed. It felt hard and firm, except at its anterior part, close to the anus. Here there was evidence of a protrusion of peritoneum. The wall of the cone was at this point flaccid, and compared very markedly with the firm wall presented by the rest of the prolapse. The buttocks had been well raised to hinder the protrusion of any coils of small intestine, and no evidence of such a hernia existed. I then cut across the prolapse at the level of the anus—i.e., at the very base of the cone. I divided the anterior wall first, and opened the peritoneal cavity; the opening was at once plugged with a sponge. The rest of the prolapse was then severed rapidly with scissors. The cut end of the bowel, muscular coat and mucous coat together, was seized with pressure forceps in the manner already described. It was thus held in position, was prevented from retracting, and all bleeding points were secured at once. The small plug of sponge having been removed, the first care was to close the peritoneal wound; this was done by means of some six or seven points of the finest chromicised catgut. I next attached the divided end of the bowel to the margin of the anus. The sutures involved the whole thickness of the wall of the rectum, and as much as possible of the subcutaneous structures about the anus. A suture involving merely the skin and the mucous membrane would obviously not have met the needs of the case. As the pressure forceps were removed, to prepare each segment of the divided rectum for fixing in place, any bleeding point made evident was ligatured; the suture material was of silkworm gut. The bowel had been divided above the greatly thickened and hypertrophied part which formed the prolapse, and the segment attached to the anus was thin and in every respect normal.

The anus, as it appeared at the time of the operation, was of immense size. The external sphincter appeared as a quite considerable ring of muscle. The part removed measured five inches in length, and upon its anterior surface was nearly three square inches of peritoneum. Although the mucous membrane was represented by a double fold, one covering the outer surface of the prolapse and the other lining its lumen, the muscular tunic was represented by only a single tube. The internal sphincter formed the apex of the protrusion, and thus it happened that four inches and three-quarters separated the external sphincter from the internal. The muscular coat of the rectum had descended bodily, and had carried the mucous membrane before it. It had not been turned "inside out," but had been prolapsed precisely as if it had been a solid organ like the uterus. It is hardly necessary to point out that, structurally and morphologically, the two sphincters are quite distinct; they are developed separately and belong to separate embryonic parts. The internal sphincter had in this instance formed the apex of the protrusion just as the ileo-cæcal valve forms the apex of the ileo-cæcal form of intussusception. The tissues of the prolapse presented no evidence of disease beyond that afforded by the thickened and contracted muscular tunic. The lumen of the tube admitted the forefinger, but it was readily dilated after removal. There was no suggestion of any stricture in the part removed, and no trace of a polypus or growth. The patient recovered rapidly and without a bad symptom.—*Lancet*, Feb. 22 and March 1, 1890, pp. 396, 454.

ORGANS OF URINE AND GENERATION.

70.—ON SCROFULOUS AND TUBERCULAR KIDNEY.

By J. KNOWSLEY THORNTON, M.B., M.C., Surgeon to the Samaritan Free Hospital, London.

Under the terms scrofulous and tubercular kidney we have to consider two conditions which, though both tubercular in origin, are in their clinical history and results, as seen by the surgeon and pathologist, very different. That form of miliary tuberculosis which is occasionally primary and unilateral appears to be a rare condition. Newman, in his excellent lectures, merely admits its possible occurrence, but I have seen the condition in three cases in the living subject, and in one I had a much later opportunity of examining the kidneys after the death of the patient. A consideration of these cases has led me to conclude that there is a primary renal tuberculosis, which may attack only one organ, and which does not necessarily pass on into the chronic or scrofulous variety, with which we are all so familiar. The presence of

tubercle in a single organ presupposes a lowered vitality affecting especially this organ or a part of it, and Newman has noted that in acute tuberculosis the area supplied by a single branch of the renal artery may alone be affected. Is it not possible, then, that there are cases in which the lining membrane of the pelvis of the kidney, a part specially exposed to irritations likely to produce pathological change, may be primarily and for a time solely attacked? Bearing in mind the result of incision and drainage in some cases of peritoneal tubercle, a similar treatment may be able in this instance also to arrest the disease whilst still local. I have met with a case which shows that we may have a primary acute tuberculosis limited at the beginning to one kidney and going on to a fatal termination by extension to the other kidney and suppression of urine, without ulceration and caseous deposit—never becoming, in fact, the well-known scrofulous kidney. Early incision and drainage, though it may arrest the disease in its local form, will not bring about a cure in all cases, for in some the other kidney will become infected and death will result from uræmia, the disease not necessarily passing into the chronic or so-called scrofulous form.

In the scrofulous kidney the primary focus is in or near the papillæ, and from thence it spreads to the adjacent kidney substance, forming a caseous mass which breaks down and leaves an ulcer. Several centres, some in the papillæ and some in the renal parenchyma, following this course, coalesce to form a large cavity communicating with the renal pelvis and destroying most of the kidney substance, the ureter often becoming blocked, so that a pyonephrosis is formed. As to its *étiology*, the specific virus is probably in the system, and then some accident, such as exposure to cold and damp, determines the weakening of vitality in the part attacked. The symptoms are unfortunately not very marked in the early stages; kidney-ache, with albumen and traces of blood in the urine, are usually the earliest. Later the urine becomes alkaline, contains pus, then triple phosphates, and débris of the renal tissues, and is putrid. Later still, swelling of the affected kidney is discovered, colic alternates with discharges of pus through the bladder, and suppression of urine, with fatal uræmia, may supervene. The diagnosis is certain if tubercle bacilli can be detected in the urine. I regard catheterisation of the ureters with suspicion, as being very likely to damage the healthy ureter, and by so lowering its vitality encourage the disease to invade it. The endoscope may be a safer instrument, but it can be only useful to decide whether one or both kidneys are affected; it does not help us as to the pus being tubercular or calculous. The differential diagnosis of tubercle and calculus is in some cases very difficult. In favour of tubercle are the evening rise of temperature, more irregular and more constant hemorrhage often

coming on when the patient is at rest, and more constant discharge of pus. Micturition is frequent, and when the bladder becomes infected, is often terribly painful. In cases in which it is advisable to employ puncture, never, under any circumstances, use for the purpose that surgical abomination, a grooved needle, for it will allow infiltration or infection of all the tissue through which it brings the fluid. Always use a thoroughly aseptic trocar and cannula, and a trustworthy aspirator, which will not admit air as the fluid is withdrawn; or use a simple trocar and cannula, with full Listerian precautions, not forgetting the now too often discarded spray. And whatever instrument you use, be careful, in withdrawing it, as in withdrawing a catheter from the bladder, to bring out with it all the fluid it contains, and not to leave a portion of this in the tissues through which the cannula passes after leaving the kidney. I would especially warn you also never to tap a suspected renal tumour through the anterior abdominal parietes—i.e., through the peritoneum.—*Mr. Knowsley Thornton's Second Harveian Lecture, Lancet, Dec. 7, 1889, p. 1159.*

71.—ON OPERATIVE PROCEDURES IN RENAL DISEASES.

By J. KNOWSLEY THORNTON, M.C., Surgeon Samaritan Hospital.

In advocating any of the following surgical procedures for the relief or cure of renal disease, I do it only on the distinct understanding that they are to be performed with every protection that antiseptics can give. Puncture of the kidney may be useful to clear up a doubtful diagnosis, as to an enlargement of the organ being solid or in part fluid; may be curative in simple serous cyst or in hydronephrosis; at any rate, it may be tried in some cases before performing any more serious operation. In renal and circumrenal abscess it may be a useful preliminary to free incision and drainage, but the latter procedure should follow immediately, when the exact situation of the pus is made certain by the result of puncture. I do not think it is ever justifiable to puncture in hydatid disease, but it is urgently indicated in calculous suppression of urine. Puncture, if performed in pyonephrosis, is almost certain to allow escape of pus into the adipose areolar capsule and into the other tissues around the kidney, and the perinephric suppuration thus started, whether simple or tubercular, adds greatly to the risk of any future curative operation. Careful percussion in each case is the only safe guide for the selection of the exact point of puncture. Aspiration may be used as a means of temporary relief when distension is causing great pain, and it is impossible to perform immediately a curative operation. It is also useful in the course of the operation for complete removal of the kidney, to avoid rupture and fouling of the wound during the subsequent enucleation; but the puncture is very difficult to close

effectually, and in most cases it is far easier to enucleate the kidney when tense and full than when relaxed by withdrawal of its fluid contents. In introducing a needle or trocar, take care not to transfix the organ, to keep the point well away from the hilum, and on withdrawal cover the site of puncture with a small dry antiseptic dressing. When the kidney is to be incised for the evacuation of fluid or for digital exploration of its interior and for subsequent drainage, there can be no two opinions as to the lumbar incision being the only one at all justifiable. The semi-prone position over a pillow, though widening the interval between the last rib and the ileum, has obvious disadvantages in the future steps of the operation, and for simple exploratory incision I have always found that I could work quite well with the patient laid flat on his back, with the side to be operated upon projecting well over the edge of the table. I prefer an oblique three-inch incision through the skin and deeper tissues, and I like to open the kidney through the pelvic wall, because such an incision heals well, and hemorrhage from the kidney substance may be troublesome. Incisions into the kidney must be more liable to damage the organ for future use, though it may sometimes be necessary in order to obtain a cure. The finger should then examine the interior, and this should be followed by flushing out with warm antiseptic solution, one or more rubber drainage-tubes being introduced into the loin tissues and up to the kidney, but not into its interior, and the wound closed around the tube or tubes with interrupted sutures, which should embrace all the divided loin tissues and the adipose areolar capsule. A large absorbent antiseptic dressing should be applied and changed at least once in every twelve hours. This is one of the cases in which the use of the spray is not necessary. Nephrotomy is safer and much more sure than puncture for the cure of simple cysts. It is, when aided by after-drainage, the only proper treatment for hydatids, for abscess, whether in the substance of the kidney or in the surrounding tissues, and it is often urgently indicated in calculous suppression of urine. It may be tried in hydronephrosis, and may be used for the extraction of a calculus. In pyonephrosis I would restrict it to the simple form resulting from injury, and to primary tubercular pyonephrosis when it can be diagnosed sufficiently early. I object to the lumbar incision and drainage in the more advanced cases of calculous and tubercular pyonephrosis, especially to this proceeding when used as a preliminary to nephrectomy, because, without offering any compensatory advantage, it leads to prolonged and exhausting suppuration, to infection of the loin tissues with the pus from the kidney, and to adhesions and fistulæ, which make a future nephrectomy much more difficult and dangerous. The suppuration which frequently follows a nephrotomy in these cases cannot but weaken and injure the patient, and tend

to produce amyloid disease in the opposite kidney. The diminution of the size of the vessels, said to occur, is a matter of no consequence in these days of aseptic ligature and forci-pressure. The diminution in the size of the kidney is of equally little consequence, for this can be rapidly produced during nephrectomy by the use of the aspirator. The advantage of the less friability of the kidney and of the tolerance of surrounding parts is dearly bought by the presence of a permanent fistula, and by the replacing of soft and easily divided adhesions by dense cicatricial tissue, not to mention the extensive formation of adhesions in the track of the lumbar operation, which would have had no existence but for that operation. This fistulous track is certain to be putrid after prolonged external suppuration; for if putridity is not present, the sinus is pretty certain to heal; but this cannot happen in the presence of multiple or branched calculi, or of caseous masses in the deep recesses of the kidney. It is quite possible to enucleate a pyonephrosis entire, and without fouling of the wound, before there is a sinus, but quite impossible after there is one. I am glad to see that Morris has come over to my views on this subject, the only point now in dispute between us being the important one of lumbar or abdominal incision. The only cases in which we can, in my opinion, gain any advantage by preliminary incision are those in which the suppuration has already broken through the kidney wall and become diffused into the tissues around. This is not a preliminary nephrotomy, but the mere application of ordinary surgical rules, to a diffuse suppuration outside the kidney. I think I might have gained something in two of my fatal nephrectomies had I adopted this procedure. I doubt if it would have saved the life of either, but I think it very probable that it would have demonstrated the unfitness of the other kidney to bear any extra strain in the last case, and would have thus saved abdominal nephrectomy from the reproach of one fatal case. The result of nephrectomy in one case where much ground had been lost by previous nephrotomy and drainage, and the results of immediate nephrectomy in seventeen other cases of chronic suppuration (calculous or tubercular pyonephrosis), the pus being confined to the interior of the kidney, prove absolutely the advantages that can be obtained by this method. Only two out of the seventeen died—one from injury to the vena cava, and one from hemiplegia (the result of the anæsthetic), the suppuration in the kidney having nothing to do with the death in either case.

Before leaving the operations of puncture and of lumbar nephrotomy let me briefly summarise the results of my experience. I would restrict the use of puncture as follows:—1. To decide in doubtful cases between solid and fluid tumours of the kidney. 2. To relieve painful distension when nephrotomy for some special reason is not at once advisable or possible. 3. To remove urine, or serum,

or pus from a very large tumour, to reduce its bulk during the performance of nephrectomy. 4. As a tentative attempt at cure in some cases of simple cyst or of hydronephrosis, though the chance of cure is, I think, very slight. 5. To localise the position of renal or circumrenal abscess, when the physical signs are not clear enough for free incision. In such cases to be immediately followed by free incision when the pus is found. 6. To gain time, and relieve the harmful tension in some cases of calculous suppression. I would restrict the use of nephrotomy—1. To cases of calculous suppression, in which incision seems preferable to mere puncture, with the chance of being also able to remove the stone—i.e., if further experience shows that this is a safer and better operation than my combined method. 2. For the cure, by subsequent drainage, of simple cysts, abscesses, and hydatids. The question of possible cure in some cases of hydronephrosis to be further tested. 3. For the cure, by subsequent drainage, of traumatic pyonephrosis or pyelitis, and in the early stages of tubercular suppuration. 4. For the possible cure of more advanced calculous or tubercular suppurations, when the patient will not submit to nephrectomy. 5. For the performance of nephrolithotomy in some cases, if extended experience shows that this procedure possesses any advantages over the combined method, or when those who have no experience in abdominal surgery are compelled to operate.—*Second Harveian Lecture, Ibid., p. 1160.*

72.—ON MALIGNANT DISEASE OF THE KIDNEY.

By J. KNOWSLEY THORNTON, M.C., Surgeon Samaritan Hospital.

Sarcomata are not only among the commonest of renal tumours, but also the most varied in their clinical characters, some being so malignant that they should never be touched, while others are so slow in growth, so slow in invading neighbouring parts, and so slow in recurring, if they ever do recur, that they present the most favourable cases for successful surgery. Renal sarcoma is commoner in children than in adults, and is also usually in them of a very malignant type. I have never myself operated upon a child for renal sarcoma. I have refused to do so several times, and I have seen several such operations, and each has impressed strongly upon my mind the uselessness of the procedure. With adults the exact reverse seems to be the case; in them renal sarcoma is often of slow growth, is slow in invading neighbouring tissues, and is also slow in recurrence. The difference is to be sought, first, in the varieties of sarcoma most common in early life and in the adult; and, secondly, in the portion of the organ first invaded by the disease. In children the cell element predominates, while in adults there is a large amount of dense inter-cellular substance. In children the whole organ is much more

often infiltrated, while in the adult the disease commonly attacks the capsule, leaving often the secreting structure uninvaded. Of the five adults I have operated upon for sarcoma three recovered and two died. Four of the patients were females, aged respectively fifty-three, twenty-five, forty-two, and thirty-six, and the fifth was a male aged twenty-two. In one of the cases the tumour was large, and had not involved the kidney at all; it had been suggested that it originated in the supra-renal capsule, but against this was the fact that the capsule of the kidney was continued over the surface of the tumour. My first fatal case was a cysto-sarcoma, weighing ten pounds, of mixed kind, containing round cells, myxomatous tissue, and many bloodvessels, occurring in a woman aged twenty-five; it had penetrated the diaphragm and pleura. The second was that of a married woman, aged forty-two, and the growth was a spindle-celled sarcoma commencing in the capsule near the hilum, and invading the interior of the pelvis. The history of the first of these cases is sufficiently long to make it probable that an early operation might have saved her. In the last case the slow growth, with no sign of infection of other organs, in spite of the early hemorrhage, shows, I think, clearly, that a successful result would have attended operation, at any time before the kidney became fixed by extension of the growth into the surrounding structures, and the health broken down by repeated hemorrhages and constant suffering.

If we now attempt to summarise our imperfect knowledge of renal sarcoma, we find that it is most common in children, is in them often congenital, in this case going on to a rapidly fatal termination, from quick increase in size, involvement of neighbouring tissues and organs, and general marasmus; that when it makes its appearance later, but still in childhood, it runs a much more rapid course than in the adult, more speedily involves surrounding tissues, and is therefore rarely seen at a time when operation can be undertaken with any reasonable chance of completely eradicating the disease; that even when detected quite early, and before there is any sign of its having involved the other tissues, its removal is commonly followed by such speedy recurrence that the operation is barely justifiable. Such recurrence, moreover, is very extensive in its outbreak, and usually leads to an amount of suffering altogether beyond that which is seen when the disease is allowed to run its natural course in the kidney. Turning now to the adult, we find that the disease is most common in the middle period of life, is usually slow and insidious in its early course, and frequently progresses slowly, and often painlessly, for years, before it spreads beyond the kidney; a certain amount of aching and pain in the situation of the affected kidney, occasional attacks of hæmaturia, and a hard swelling in the renal region, which is from its weight apt to become more mobile

than a normal kidney, and is therefore likely to be regarded as an innocent condition, being the only symptoms which are at all common. It is worthy of special note that with two large tumours of the capsule (or of the supra-renal capsule) there was no hemorrhage; indeed, the only symptom in each case was the tumour, till its size caused indigestion, nausea, &c. There was never any urinary symptom in either case to direct attention to the kidney. The tumours most likely to be mistaken for renal tumours are retroperitoneal cysts, often quite impossible to diagnose from hydronephrosis, omental cysts, distended gall-bladder surrounded by adhesions, enlarged spleen, ovarian tumour, subperitoneal fibromyoma and solid sarcoma of mesentery, and retro-peritoneal tissue. Lymphadenomata, though not uncommon in the kidneys, are always a part of a general disease, and, except in the matter of differential diagnosis, quite outside the province of surgery. Of carcinoma, the encephaloid variety is most common, then the scirrhus, then the colloid. Epithelioma and cylindroma are so rare as to be almost curiosities. We have, of course, nothing to do with the secondary forms of the disease, which attack both organs, but only with primary cancer affecting one kidney. This is not nearly so common as sarcoma, and is essentially a disease of the adult, and occurs chiefly in people past middle life. The causes appear to be heredity, the long-continued irritation of calculus, accidental blows, and injuries. The symptoms are a combination of those of calculus, of those of the early stage of tubercle, and of those of sarcoma. I think Newman puts it well when he says, "The differences in the symptoms of sarcoma and those of cancer will be found to be one of degree rather than of kind." Renal carcinoma frequently infiltrates the whole organ, but it also occurs with the appearance of a capsule; this is, however, deceptive, for microscopic examination shows that there is a gradual transition from the cancer to the healthy renal epithelium, extending through the apparent limiting capsule. This was well seen in the only case of primary cancer that I have met with, in a widow aged fifty-three, from whom I removed a kidney affected with encephaloid cancer. Adding this case to the sarcoma cases, I have six operations for malignant disease, with four recoveries and two deaths.—*Third Harveian Lecture, Lancet, Dec. 20, 1889, p. 1268.*

73.—ON LUMBAR AND ABDOMINAL NEPHRECTOMY.

By J. KNOWSLEY THORNTON, M.C., Surgeon Samaritan Hospital.

Lumbar nephrectomy is essentially the same operation as lumbar nephrotomy, but with the addition of the enucleation and removal of the kidney through the lumbar incision. The objections to it are: 1. The small space available for incision in most cases.

2. The danger of wounding a pleura with a low insertion. 3. The danger of wounding the colon or the peritoneum, and of fouling the latter without being aware of the accident. 4. The possibility of not being able to find the kidney at all, an accident which has happened in a large number of cases, and to experienced surgeons. 5. The possibility of removing a single kidney, without knowing that the patient has only the one. 6. The impossibility of noting the condition of the other kidney and ureter. 7. The fact that it is only suitable for a limited number of cases, it being impossible to remove much-enlarged kidneys, through any incision that can be confined to the loin. I have only once performed the operation, and then under peculiar circumstances. I had made a median abdominal incision to explore the pelvic contents, and found a disorganised kidney. It was impossible to remove it through this median incision without extending it to a great length, and so, having opened the kidney through the loin to explore its interior, I extended this into the usual lumbar incision, and thus removed the kidney.

The great point advanced in favour of lumbar nephrectomy is that up to the present time it has been more successful than the abdominal method; but this is because the latter has usually been a last resource in cases too bad to be operated on by the lumbar method. There are, however, some conditions in which the lumbar operation may properly be performed, notably cases in which a lumbar incision and drainage having failed, the extirpation has to be undertaken with a fetid sinus, already extending from the loin into the interior of the kidney; also in some cases of wound of the kidney, to which I shall refer later. For the performance of lumbar nephrectomy various operators advise various incisions, but each case must really be dealt with on its own merits, according to the size of the kidney, the absence or presence of adhesions, and the configuration of the individual. When the kidney is thoroughly exposed, it must be enucleated from its adipose areolar capsule, or from its true capsule, according to circumstances. When reached the vessels should be tied as close to the kidney as possible, *en masse* if they are normal, and separately if they are more numerous. The ureter should, whenever possible, be loosened from its bed, secured with forceps close to the kidney, and then ligatured further off, a sponge being placed under it when it is divided between the forceps and ligature, in case a few drops of its contents should foul the wound. Its free end should be fixed in the lips of the external wound by a suture, or safety pin, a rubber drainage-tube or two being placed alongside of it, and the wound closed round their mouths by a few points of interrupted suture, each including all the divided tissues. Before the sutures are introduced, the wound should be well dried with carbolised sponges, and then flushed with some warm antiseptic

solution. If the adhesions round the vessels are very dense—sometimes they are like cartilage—they must be carefully snipped through, bit by bit, with scissors, and the vessels tied together with some of the adherent tissue, rather than risk wounding the aorta or cava by too carefully dissecting them out. A large, thick, absorbent, antiseptic dressing, secured by broad adhesive straps, or by a many-tailed flannel bandage, is then applied. The vertical incision which I suggested in 1883, so as to avoid opening the peritoneum, I have found in practice not to answer.

Abdominal nephrectomy should be performed by the lateral incision introduced by Langenbuch, and made along the outer border of the right or left rectus, according to the kidney to be removed, as it not only gives a more easy command of the renal vessels and ureter; but it avoids almost entirely exposure of the intestines and general cavity of the peritoneum during the operation, and it gives easier access to the outer layer of the mesocolon, through which the kidney should be approached in order to avoid the vessels, which lie chiefly in the inner layer; thus by operating through the outer layer hemorrhage is avoided, and the vascular supply of the colon is less liable to injury. The incision should begin just below the ribs, a narrow hand's-breadth from the middle line, and be carried down for about four inches, so as to admit the operator's hand without bruising the parietes. As soon as the peritoneum is open, the hand should be introduced and passed over to the opposite side of the abdomen, for the examination of the opposite kidney and ureter. A flat carbolised sponge is then introduced, to keep back and cover the intestines; a small opening is made in the outer layer of the mesocolon, and enlarged by tearing, and through this opening the size and condition as to adhesions of the kidney are estimated. When it is found that the tissues lying above the kidney are normal, the fingers can be gradually insinuated under the peritoneal covering till the aorta is reached; from it the renal artery can be traced, and then the vessels can be ligatured before the kidney is enucleated, but when, on the other hand, there is much inflammatory thickening of the tissues and adhesion, the kidney must be enucleated before the vessels can be reached and cleared. In old-standing cases of pyelitis or pyonephrosis the adhesions about the vessels and hilum are often extremely dense and thick, so that the renal vessels can only be discovered when they are cut across and bleed, and can only be secured by running a needle armed with silk under their mouths in this dense tissue. When I can I transfix and tie the vein and artery separately; in other cases I pass the silk through some part of the tissues above the vessels and tie *en masse*. I usually apply a separate fine ligature around the whole pedicle before dropping it. During enucleation each bleeding vessel should be secured by a pair of small pressure forceps, and well-

wrung sponges should be pushed down between the kidney and the capsule as successive portions are enucleated. The last part to separate is the ureter, and before separation its renal end should be secured by pressure forceps, then a ligature tied a little way from the forceps, and a sponge placed under it before it is divided. Whenever it is possible I enucleate it for some distance from the kidney before dividing it, so that its cut end, with the sponge under it, may be at once drawn outside the abdomen; and I afterwards fix it in the lower angle or most convenient part of the abdominal incision with a cleansed safety pin. The vessels having been secured, the sac should be carefully sponged out. If a well-wrung sponge, pressed to the bottom of the sac, comes out fairly dry and but little blood-stained, and if the operator is absolutely certain that no fouling of the sac has occurred with the kidney contents, its edges may be allowed to drop together, and the abdomen closed without drainage. It is not advisable to suture the edges of the sac. If there is fear of oozing, or the least doubt as to the perfect asepticity of the operation, it is better to drain with a Keith's glass tube, projecting from the abdominal incision with sponge dressing, and clearance every twelve hours under the spray. If a loin opening has also been made, a rubber tube should be placed there. I treat the cases after operation exactly as I treat all other abdominal operation cases, except that I allow no opium in any form, and I avoid stimulants also. When a sedative is absolutely necessary, I give bromide of potassium and chloral, in rectal injections. Sickness I treat at first with fifteen-grain doses of oxalate of cerium in mucilage, frequently repeated; but if it continue beyond the third day, I give a few doses of white mixture, and aid its action by a small enema, and this is generally efficacious. In the absence of vomiting, I keep the bowels quiet for a week, as any disturbance in the colon must affect the intra-peritoneal wound injuriously. I now treat the ureter with tincture of iodine, then with strong corrosive sublimate lotion, and in some of the cases it has after this remained sweet, and healed quickly. The occasional absence of a second kidney, the knowledge that in one case at least (Polk's) a single kidney has been removed, the error only being discovered after the death of the patient, the importance of knowing exactly the condition of the other kidney and ureter, and the greater convenience and precision of the abdominal method, seem to me to indicate its use in all but some exceptional cases, to which I have already referred. I do not advocate the performance of abdominal nephrectomy by every tyro in surgery, neither do I recommend such to undertake any serious abdominal operation; but I do unhesitatingly affirm that, as a precise and scientific operation, there is no comparison between the abdominal operation and its lumbar rival.—*Lancet*, Dec. 21, 1889, p. 1269.

74.—ON THE CHIEF CONDITIONS SIMULATING RENAL CALCULUS.

By W. H. A. JACOBSON, M.Ch.Oxon., F.R.C.S., Assistant Surgeon Guy's Hospital; Surg. Royal Hosp. for Women and Children.

The chief conditions simulating renal calculus are : (1) Lithiasis, and, to a less degree, oxaluria ; (2) tubercular kidney ; (3) pyelitis, not tubercular ; (4) movable and (5) aching kidney, especially if associated with (6) neuralgic conditions ; (7) disease in organs contiguous to the kidney ; (8) disease of lumbar spine ; (9) interstitial shrinking nephritis ; (10) malignant disease of the kidney, especially of its pelvis and malignant disease around last dorsal nerve.

1. *Lithiasis*.—I have already alluded to this condition, as one which simulates renal calculus by the hæmaturia which crystals of uric acid may cause. Lumbar and testicular pains are also points which mere lithiasis shares with renal calculus. The diagnosis will not be difficult by watching the result of treatment which only gives relief in the one, but clears up the other. Exercise, again, is a test. A patient with renal calculus, who declines or is unsuited for operative treatment, is often much crippled in carrying out palliative treatment, and made worse by the exercise which is otherwise so essential to him.

2. *Tubercular Kidney*.—Lumbar pain and tenderness, frequent micturition, hæmaturia, are all common to tubercular kidney and renal calculus. The chief aids in the diagnosis appear to me to be : (a) the pyuria ; (b) careful examination of the urine ; (c) early pyrexia ; (d) early exploration of the kidney. *a. Pyuria*.—This is usually present early in the case with a proportionate amount of albumen, without much hæmaturia, the blood often occurring only as a thin layer over the pus at the bottom of the urine glass, or as small thready clots. With all the pus the urine is strongly acid at first, then more feebly so, but often remains slightly acid to the last. *b. Careful Examination of the Urine*.—The sediment contains caseous matter, and sometimes *débris* of connective tissue can be made out, a point of much importance. Finally, there is the bacillus tuberculosis. While I am well aware of the frequent want of success in demonstrating the presence of the bacillus in urine as in bone, I may add that it was found in three out of the eight cases in which I have been asked to explore tubercular kidney. *c. Pyrexia*.—I do not here speak of the hectic which accompanies the advanced stage, but of the pyrexia which may be an important factor in the diagnosis much earlier in the case. Often intermittent at first, and liable to be overlooked in the anorexia, nausea, and debility which accompany it, later on, and too late, it becomes only too evident and confirmed. *d. Early Exploration of the Kidney*.—I would most strongly urge this step, with a twofold object : (1) to clear up the case, and (2) to perform nephrectomy.

if the kidney is found to be the site of so fatal a disease. If I am told of the unwisdom of this step, owing to the probability of both kidneys being affected, I would reply that, as a rule, both kidneys are not affected at an early stage. Thus Dr. Fagge gives a list of thirteen cases which show "the characters of tuberculous disease of the kidney at its commencement." In only three of these were both kidneys affected, and in all these tubercular mischief was present in the bladder also. If during this early exploration one or two pyelitic dilatations are found, extirpation of the kidney should be performed while the organ is still small and movable, before the rest of the genito-urinary tract becomes involved.

I need not remind my hearers of the miseries which lie before a patient with established tubercular kidney, the results of ulceration of his bladder, with, perhaps, vomicæ in his prostate, and the inevitable course downhill—arrested, it may be, for a little while by nephrotomy and drainage. My own experience of nephrotomy in established tubercular kidney is most unfavourable, the relief being slight and short-lived, and not arresting long the hectic and increasing debility. On the other hand, in two cases in which I have been able to perform nephrectomy early the result has been very satisfactory. One, a very frail woman, aged 40, operated on two years and a half ago, has remained free from tubercular trouble since; the other, a young man, operated on eleven months ago, has been able to complete his terms at Cambridge, and to take a curacy near Ipswich.

3. *Slight Pyelitis, not Tubercular.*—This condition may by hæmaturia, pus in the urine, lumbar and testicular pain, simulate renal calculus closely. It may follow a gonorrhœa, perhaps a previous stone, or occur in women after pregnancy; probably, as Dr. M. Duncan thinks, from some parametritis extending up the psoas to the perirenal fat and kidney. Five months ago I explored the kidney of a collier from this town, whose life was made wearisome by constant aching in the right loin and testicle, gradually coming on after gonorrhœa. The urine contained no blood, but persistent oxalate of lime crystals, not removed by treatment. On examination of the kidney, both by multiple puncture and by incising the organ near its pelvis, so as to explore this and the adjacent calyces; the pelvis seemed dilated, and the kidney itself was distinctly "movable." It was accordingly sutured. The wound soundly healed, and during the five months in which he was kept under observation there has been no return of the pain. Whether this case was one of pyelitis after a gonorrhœa, or an early tubercular kidney, must remain undecided.

4. *Movable Kidney*, especially if associated with neuralgia, pyelitis, or if occurring with some of the reflex causes of nephralgia to be mentioned below.

5. *Aching Kidney.*—Under this title Dr. M. Duncan has described

a condition, especially common in women, which may simulate renal calculus. Its chief features are a heavy wearying pain deep in the side, usually accompanied by tenderness, often great; the pain often runs in the course of the great sciatic or anterior crural, and is often accompanied by irritability of the bladder, and, frequently, by pain in the course of the ureter. The disease is liable to be aggravated by exercise. The chief points in the diagnosis of this condition are, Dr. Duncan points out, the absence of blood and pus, the fact that the "aching" often occurs only at the menstrual periods and is always worse then, from the intimate connection between the kidneys and the generative organs, not only developmental but pathological.

6. *Nephralgias Due to Disease in Parts adjacent to the Kidney.*—Dr. Ralfe gives some of these; one, he thinks, is duodenal ulcer. Thus, a patient had many symptoms of renal colic, and three attacks of paroxysmal pain accompanied by vomiting, great tenderness in the right renal region, urine loaded with uric acid, but no pus or blood. The patient, who was losing flesh, recovered with treatment directed to duodenal ulcer. The same writer gives another interesting instance of intestinal irritation simulating nephralgia by causing severe pain in the right hypochondriac region. The patient was treated for biliary colic, and a few days later, instead of a gall stone, a large round worm was passed, giving relief to the pain.

7. *Gall Stones retained in the Gall Bladder* may be taken for right renal calculus. Dr. Murchison pointed out long ago that they not infrequently coexist. My old friend, G. A. Wright, of Manchester, has recorded a case in which the right kidney was explored for a calculus believed to be in the ureter. On exploring this tube a hard spot was felt near the brim of the pelvis, and taken for a stone in the ureter. A calculus the size of a pigeon's egg was removed and found to be a gall stone. Acute peritonitis carried off the patient, and a stone was found to exist in the pelvis of the right kidney, with its apex in the ureter.

While on the subject of nephralgias due to conditions of viscera near the kidney, I may refer to some remarks of Mr. Godlee, in which he insists that repeated attacks of intestinal colic, especially if accompanied by nausea, may be the only symptoms of the presence of either a renal or biliary calculus, and that this fact should lead the practitioner to investigate the state of the kidney and urine, bearing in mind the possibility of the symptoms being due to renal or biliary calculi.

8. *Spinal Disease.*—The great difficulty which may arise in diagnosing between certain cases of spinal caries and renal calculus is not yet sufficiently recognised. A writer, already quoted from (G. A. Wright), thus alludes to this matter. "Where a local patch of caries of a vertebral body exists, and especially

where deep suppuration occurs and presses upon the kidney, as in a case of my own and one or two others which I have seen, nearly all the symptoms of a calculus have been present. In my own case, without any deformity or tenderness of the spine, there was unilateral rigidity, testicular pain, intermission of symptoms, increased frequency of micturition, nausea during attacks, and oxaluria with local pain and tenderness. Subsequently an abscess developed, and on exploration a small patch of caries was found, and the kidney was felt exposed in the anterior wall of the abscess cavity. Probably, as in floating kidney, obstruction of the vessels and ureter may arise and cause symptoms, so that pressure of the spinal abscess may disturb the kidney and quite possibly give rise to hæmaturia."

9. *Interstitial Shrinking Nephritis*.—This condition may simulate renal calculus both by hæmaturia and pain. Dr. S. West drew attention to the hæmaturia which may accompany granular kidney, and published three cases, aged 21, 19, and 24; in the first the hemorrhage was profuse. Mr. Bowlby also published three cases, aged 73, 49, and 64; two of these died, and the kidneys were found markedly granular. He points out the following as distinguishing this condition from renal calculus. The specific gravity of the urine, after the blood has cleared up, only 1008 to 1015; tortuous arteries, cardiac hypertrophy, and high arterial tension; blurred, ill-defined discs, some retinitis and effusion amongst the blood vessels. The paper concludes with the following warning: "Unless it be recognised that blood may emanate from a kidney which is simply granular, operations may be undertaken for the removal of renal calculus. I have only time just to mention two other conditions which may simulate renal calculus: they are:—

10. *Growth of the Kidney in its Early Stage, and Malignant Disease, involving the last Dorsal Nerve*.—I have not had sufficient space for the quotation of cases; but I may briefly allude to one here which shows how closely the presence of renal calculus may be simulated, and how misleading evidence may be. Four years ago a patient, aged 44, came under my care with hæmaturia, wearing pain, tenderness in the right loin and thigh, and oxaluria. His childhood had been passed in Norfolk, and as a lad he had been cut by Mr. Birkett for stone in the bladder. I sounded him twice, and finding no stone, I swept the sound in contact with the bladder in different directions, in the hope of detaching fragments of growth, if one were present. No relief being given by drugs, I explored the right kidney, and could find nothing abnormal. Four days after the operation, while all seemed to be doing well, the patient died very suddenly. The post-mortem examination showed (1) a primary carcinomatous growth in the bladder of a somewhat unusual kind; it involved

the apex, as a flocculent, superficially-ulcerated area; (2) a ring of secondary deposit surrounding the last dorsal nerve, just at its exit from the spine; (3) a mass of enlarged glands around the inferior cava, and at one spot sprouting into it.—*British Medical Journal*, Jan. 18, 1890, p. 118.

75.—ON THE CHIEF PRACTICAL POINTS IN THE PERFORMANCE OF NEPHROLITHOTOMY.

By W. H. A. JACOBSON, M.A., F.R.C.S., &c.

These are—1. To count the ribs. That this is not an unimportant detail is proved by the fact that Prof. Dumreicher, of Vienna, accidentally opened the pleural cavity in an attempt to remove a pyelo-nephrotic calculous kidney. Post-mortem, the last rib was found to be rudimentary, and the pleura projected a good deal below the lower edge of the eleventh rib.

2. To make a sufficiently free incision, especially in a stout patient, and a deep loin. Additional room may be gained by converting the usual lumbar incision into a T-shaped one, or by making use of König's incision, in which the muscles are cut through as far as the rectus, and the peritoneum pushed forwards. A small stone in a kidney will always be liable to be overlooked, but a surgeon does not give his patient or himself a fair chance who is content with exposing the kidney through a limited incision, and then trusting to punctures with a needle.

3. To pack away with sponges the colon, which is often troublesome distended with flatus in these cases.

4. If the stone cannot be felt either in the pelvis or after palpation of the posterior and anterior surfaces of the kidney, this should be drawn up and out of the wound as far as possible, and again examined, a careful watch being kept upon the pulse.

5. In puncturing the kidney, to try, as far as possible, to open the calyces systematically.

6. If palpation and acupuncture fail to find a stone, the kidney should be carefully opened and sounded. I will recur to the subject of hemorrhage shortly, and take first the best site of opening the kidney. Hitherto in five doubtful cases I have incised near the pelvis, as the viscus is thinner here, and as the surgeon can better reach the calyces. Mr. Jordan Lloyd, however, recommends the following method of exploring the interior of a normal kidney: "When the kidney is exposed through a lumbar wound I puncture its lower end with a long-bladed tenotome in a direction upwards and inwards, making for the lowest of the calyces. If the surgeon is observant and his knife is keen he will readily appreciate the moment when a cavity is struck by the altered resistance offered to the puncturing instrument. It is important, because a tenotome may be pushed up to its handle in a

normal kidney without tapping its interior cavity, having travelled *along* the kidney substance rather than *through* it. Into this opening I pass a child's bladder sound, and systematically explore the whole of the pelvis." It is advised that the blade should be not more than one-third of an inch in length, a stem of about 7 inches, and the size of a No. 3 English catheter. It should be passed at once to the top of the kidney cavity, a distance of nearly 4 inches, and the exploration should be carried out systematically from above downwards, the point being rotated in all directions, so as to investigate both tubes and calyces as the instrument is withdrawn. In this manner Mr. Jordan Lloyd has succeeded in finding a calculus, after needling and palpation had been assiduously tried with negative results.

7. Hemorrhage from an incision into the kidney is certainly arrested by firm, careful plugging with strips of sal alembroth gauze. On the five occasions on which I have used this plan I have removed the strips the next day with the aid of a few minutes' anæsthetic, gas sufficing for this. It is said that this plugging may cause vomiting. This did not occur in any of my cases. It ceases on the removal of the plugs. Care must be taken that the plugging is thoroughly done. If inadequate it will have to be repeated in a few hours—perhaps more than once—thus leading to exhaustion and setting up cellulitis, which may of itself be fatal, owing to the important relations of the kidney.

8. Sources of difficulty in removing the stone. The chief of these are: (1) A very mobile kidney, which gets away deep in the wound; (2) a stone situated on the anterior surface and near the entrance of the vessels; (3) a small stone in a sacculated kidney, the stone falling into one of the sacculi, thus being hard to find.

9. Multiple calculus in a suppurating, damaged kidney. If the question of nephrectomy arise this step should, as a rule, be deferred, and the kidney thoroughly drained, for (1) additional shock and loss of blood will be avoided. (2) The condition of the opposite kidney, very possibly calculous also, will be made clearer by waiting. (3) The bulk of the kidney will be lessened by drainage. (4) Though a source of discomfort (if an open sinus persist) it may still do some and important work.

10. If the kidney has been much disturbed it should be stitched *in situ*.—*British Medical Journal*, Jan. 18, 1890, p. 120.

76.—REMARKS ON NEPHROLITHOTOMY.

By E. L. KEYES, M.D., New York.

[Dr. Keyes publishes the notes of Six Successful Cases of Nephrolithotomy, and then proceeds to make the following general observations upon the operation.]

Nephrolithotomy as an operation of the first order is, to-day,

an established surgical fact, and needs no words of mine in its justification. The obscurity which often surrounds diagnosis of kidney stone, the fact that fruitless search has often been made for it through a surgical opening, and the possibility of having symptoms in one kidney when the stone is in the other, together with the idea in the minds of some that the operation itself is a formidable one, have often led to hesitation in resorting to the knife; a hesitation which, I think, will gradually disappear as our experience becomes broader. For what better justification of the exploratory incision can there be than the fact that, even when it is negative in its results, as far as finding stone is concerned, yet a cessation of the symptoms, for the relief of which it was undertaken, very frequently follows its employment. Then again, as to the seriousness of the operation viewed simply in a surgical light, I think it is generally over-estimated. I have explored in all, in this particular line, six times, and every case, some of them quite serious ones, has done perfectly well and made prompt recovery, as far as the operation itself was concerned. I do not know the verdict of pure statistics upon this point. If they have been collected, I have not seen them. My record is perhaps too good to generalize from, and the same may be said of Knowsley Thornton's published statistics of his personal operations, which were thirteen in number, with one death, from suppression.

Mr. Thornton, however, does not believe in the simple posterior incision. His field is abdominal, and his preference, for exploratory purposes and to clinch diagnosis, the anterior incision, Langenbuch's, and a combined operation which he has performed ten times. He makes a serious point of the difficulties of diagnosis, which we all know to be considerable, and the details of which I have no space here to consider; but his method is (and his success justifies its exposition here) to open the peritoneum through Langenbuch's incision along the outer border of the rectus, explore both kidneys, verify in this way the existence of stone in one kidney and the integrity of the other organ; then, with one hand in the abdominal cavity protecting the colon, keeping the peritoneum out of the way, and firmly steadying the kidney, to cut down through the loin by a small incision directly upon the kidney, at the point where the stone is located, and cutting directly through the kidney substance at this point, to extract the stone with forceps through the posterior opening. This, as may at once be seen, gets the stone out with the least possible amount of displacement of the kidney from its natural attachments, and extracts it through the smallest possible opening, which is entirely extra-peritoneal, and may be drained and treated antiseptically in the usual way.

Much may be said in favour of this operation for use by those entirely familiar with peritoneal surgery and antiseptic abdominal

exploration. For those not at home in this region, an extra element of risk is inflicted upon the patient by opening the peritoneum, and I personally do not think that it is generally either necessary or justifiable; but I believe it to be an admirable resource in irregular cases and those of very uncertain diagnosis. My conclusions, therefore, based upon what experience I have had, are the following:

Conclusions.—1. The posterior exploratory incision upon a kidney suspected to contain stone is devoid of any serious danger when performed with proper care, and should be resorted to more often than is at this date sanctioned by general surgical opinion. 2. The best incision is the transverse, below the twelfth rib, with as much of a liberating incision downward along the line of the edge of the quadratus, as may be required to gain ample room. 3. The kidney may be freely cut into and rudely lacerated with the finger, when the stone calls for it, without producing any hemorrhage which hot irrigation will not control. 4. It is better, in the case of a large branching calculus, to break it up and extract it in fragments, rather than to attempt to remove it entire. 5. So little danger attaches to the posterior incision that it seems wiser always to make it the first step, reserving peritoneal exploration for a later resource in cases where the posterior exploration miscarries.—*N. Y. Medical Record*, Feb. 8, 1890, p. 143.

77.—ON THE VARIOUS WAYS IN WHICH STONES MAY BE IMBEDDED IN THE KIDNEY IN THE OPERATION OF NEPHROLITHOTOMY.

By HENRY MORRIS, F.R.C.S., Surgeon to the Middlesex Hospital.

[This and the following articles are taken from Mr. Morris's address on Renal Surgery, delivered in the surgical section of the British Medical Association, 1889. (See also "*Renal Calculus*" and "*Tuberculous Kidney*" in the *Synopsis* of this volume.)]

In performing nephrolithotomy it becomes forcibly impressed on the surgeon that calculi are imbedded in the kidney in various fashions, and that as a consequence, and quite apart from the size of the stones, some are much more difficult to discover than others. If a calculus is imbedded in the parenchyma of the kidney towards the posterior surface, it is almost certain to be readily detected by the finger passing over the surface of the organ whilst the kidney is well supported in front by the hand of the surgeon or his assistant. If the calculus is similarly imbedded in the front of the kidney, pressure from behind may not reveal its presence, and then it is requisite to free the anterior surface and pass the finger-tip over this surface whilst the kidney is supported by the psoas muscle and the spinal column. To do this satisfactorily, it is best to turn the patient on his back, so that the kidney may fall into its natural place. The examining finger is thus left free to test

the degree of resistance of the renal structure without having to use any force in keeping the kidney against its counter-resistance—namely, the vertebræ and muscle. Sometimes, in feeling over the kidney, a portion of it, varying in size from a sixpence to a five-shilling piece or more, is found soft, flaccid, thin or fluctuating, and there is nowhere any sense of hardness or increased resistance, such as might be expected from even a phosphatic stone. On incising or puncturing this soft part, pus or purulent urine is drawn off, but no stone is felt; but on introducing the finger into the interior of such an organ, a small calculus may be detected, freely movable within an enlarged pelvis, or fixed in a dilated calyx or recess in another part of the kidney, or possibly at the apex of a funnel-shaped pelvis. Such cases show that aspiration, or simple incision and drainage, are insufficient, and that one ought not to be satisfied with anything less than a digital examination of the interior of the pelvis, of the calyces, and of the commencement of the ureter of such kidneys.

Another arrangement of the calculus is sometimes found in sacculated kidneys. The renal cavity may be wholly or partially filled by a soft mortary phosphatic calculus which gives no sound or resistance to the scalpel or trocar, and yet, on incising the renal substance and inserting the finger, a stone of considerable size may be felt and the whole of the interior found lined with a layer of mortary concretion. When several calculi of a harder nature are present there is much less likelihood of their escaping detection by the trocar, and in one instance in which there were over 120 uric acid calculi, of small but very various sizes, in a kidney with very flaccid thin substance, the sensation of moving the trocar within a bag of small stones was at once felt. The very opposite state of things to that last described may sometimes deceive when searching for stone. A large-branched calculus may be so tightly embraced by the kidney substance, and the kidney may be so uniformly even on its surface that nothing more than a very firm tough organ may be thought to be present, and even on passing a needle into it no sense of calculus, but rather the resistance of a tough fibroma, is met with. In such a condition incision ought to be made into the kidney, when a calculus will at once be felt. In these cases much difficulty will be experienced in freeing the stone from its encasement, and for this purpose a moderately free use of either a straight or curved bistoury will be requisite.

It is astonishing how some of the large branches of a calculus may escape detection, unless the surgeon is aware of the firmness and closeness with which they are embraced by the tough renal tissue. After removing several large pieces of calculus I have, in one or two cases, thought that all must have come away, because, with my finger in the kidney, nothing but renal tissue could be felt; and yet, after scratching through at some point where the

resistance was greater than elsewhere, branch after branch of calculus has been exposed, showing that more of the calculus would have been left behind than had been removed had the operation been discontinued because no further actual contact with the calculus was made with the finger in the interior of the kidney. There is a condition of impaction which absolutely baffles detection, unless by chance the stone is struck on probing the kidney. This is when the calculus is fixed in a recess of the kidney, of normal size and consistence, with a thick layer of renal tissue all round it. When a stone has long rested in the same spot a thin layer of more or less vascular limiting membrane lines the recess it occupies. Sometimes hundreds of minute calculi become encysted in this manner, in groups of from eight or ten or more to 200 or more; and the limiting membrane in some of these is inflamed, or even ragged and suppurating. I have described such a case in the Clinical Society's *Transactions*, vol. xx, p. 111. To detect a stone so encapsuled the only plan is to bring the kidney well into view, and even partly out of the wound, and then to make an incision along its convex margin or into one of its surfaces.

A difficulty occasionally met with in the search for a calculus arises from the high position of the kidney, or, more properly speaking, from the low descent of the ribs, the lower end of the kidney barely reaching below the twelfth rib. When this is the case much valuable aid in manipulation is obtained by making an upward incision over the last rib a little posterior to the front extremity of the oblique wound. The extra space thus obtained is out of all proportion to the length of the incision.

The removal of the calculus after it has once been set loose of the surrounding tissue is not usually difficult, and is best accomplished by a pair of slightly curved forceps, or by using the fingertip with a scoop-like action.—*Brit. Med. Jour.* Nov. 16, 1889, p. 1081.

78.—ON THE SURGICAL TREATMENT OF PYONEPHROSIS AND HYDRONEPHROSIS.

By HENRY MORRIS, F.R.C.S., Surgeon to the Middlesex Hospital.

With the conservatism which influences the surgeon to spare an organ or part, if it is likely to be of further use to its possessor, I have till the last year or two advocated incision and drainage for pyonephrosis; and repeated tapplings followed, if necessary, by nephrectomy for hydronephrosis when large enough to form an abdominal tumour. The results of this treatment have, however, been disappointing, for the tapping has had to be again and again repeated, and nephrotomy has frequently been followed by a urinary fistula in the loin. So far as the effect on the life and health of the patient is concerned the results have been, however, satisfactory. And if it is true that the excretion of ten or twelve

ounces of urine a day by the wasted kidney is an extra security to the patient in the event of any disease arising in the opposite organ there is as a set off to this the daily and hourly inconvenience of having to wear an instrument, never over easy to keep adjusted, for the purpose of collecting the urine from the fistula.

I have found, after putting the circumstances fairly before the patients that they elect to take the risks of nephrectomy. In three cases during the last twelve months I have therefore performed lumbar nephrectomy without any preliminary operative treatment (in one case the cyst has been tapped several times by the patient's regular medical attendant) and in each instance the patient made a rapid recovery. The incision employed has been the oblique one in the ilio-costal space, cutting down through muscles, fasciæ, and fat until nothing intervenes between the dilated kidney and the finger. This done, a trocar and cannula are inserted, and the pent-up urine withdrawn. When the renal sac is partly emptied it is seized with two pairs of forci-pressure forceps, and dragged out of the wound. With a little gentle traction, using the fingers at the same time to peel off the surrounding areolar tissue, the kidney is extracted with the same ease as an ovarian cyst which has but few and recent adhesions. It then remains only to ligature the pedicle, which is done by surrounding first the renal artery, and then the renal vein and the ureter, by kangaroo tendon ligatures.

It matters not whether the tumour formed by the hydronephrosis is immovably fixed, or is capable of being moved about to a considerable degree; nor whether the sac has been previously aspirated or not. In any case there is no difficulty whatever in shelling out the kidney and withdrawing it in its collapsed state through an opening four inches and a half in length, if only the cyst itself is fairly reached before the attempt to separate it from its bed is commenced. I do not know whether this will be effected with the same facility in all cases of pyonephrosis, but on looking back, one can recall several which have been treated by tapping and drainage, but which could have been removed with the same ease as the hydronephrotic cysts in the three cases I have operated upon in this manner.

There is the same inconvenience following the tapping, incision, and drainage treatment in cases of a collection of fluid behind the peritoneum, the result of injury to the kidney, as in hydronephrosis. And for the same reason in these cases, as in hydronephrosis, providing always the other kidney is working well, I should advise nephrectomy. There is in some of these cases of injury (when the escape of urine takes place rapidly, and is mixed with extravasated blood) such an amount of fever and local inflammation that nephrectomy could not be thought of for the time; and nothing more than free incision and drainage are

requisite to secure the safety and immediate relief of the patient. Happily these urgent cases are the ones most likely to recover without leaving a fistula. But in the cases where a collection of urine slowly forms behind the peritoneum, without fever, or much local inflammation, and in which the kidney on exposure is found to be lacerated and raised forward with the peritoneum, it would be best to remove the kidney at once. In these cases a subsequent attempt at nephrectomy may have to be abandoned because of the matting of the perinephric tissue with the injured organ.

For the above reasons I have come to the conclusion that nephrectomy without previous incision or drainage should be more frequently resorted to than has been the practice hitherto in these cases.—*British Medical Journal*, Nov. 16, 1889, p. 1083.

79.—ON MOVABLE KIDNEY, AND ITS TREATMENT BY NEPHRORRHAPHY.

By HENRY MORRIS, F.R.C.S., Surgeon to the Middlesex Hospital.

Nephrorrhaphy in the treatment of movable kidney has proved very successful in its ultimate results as well as in the readiness of recovery from the operation. I have performed it in ten cases; in every one the wound had healed well; in none has any disturbance in the excretion of urine occurred, and in none of the last seven cases in which I have sutured the kidney, as well as its adipose capsule, to the parietal wound has there been enough subsequent slackening of the organ to cause any return of the symptoms. In one case in which both kidneys were mobile the patient felt so much relief after the operation on one side, that she returned eighteen months later to have the other organ fixed, and she remains well now two years after the second operation. In the first three operations I contented myself with drawing the adipose capsule well up into the wound, and cutting some of it away so as to diminish the size of the space in which the kidney had wandered; then, stitching the shortened capsule to the cut edges of muscles and skin by three or four sutures, leaving a considerable part of the loin wound to heal by granulation with the view to thereby secure a firmer hold on the kidney by the new formed tissue of the wound. Finding this was not a sufficient holdfast, in my subsequent operations I inserted sutures into the kidney substance in the following way. Three kangaroo tendons are passed through the posterior surface of the kidney, one nearer the upper the other nearer the lower end, and the third midway between the other two but nearer the hilum. Each suture is buried for a length of three-quarters of an inch within the renal substance, and penetrates about half-an-inch into the thickness of the organ. The upper suture passes through the upper edge of

the shortened adipose capsule, the transversalis fascia, and the muscles, and is tied to them; the lower suture is similarly passed through and tied to the lower edges of the cut structures, and the intermediate suture is passed through both edges of the divided capsule, fascia, and muscles, and laces all up together. The ligatures are then cut short, and buried in the wound; one or two catgut sutures bring the rest of the cut edges of the muscles together, and the skin is closed by silk sutures, one or two of which are made to fix the adipose capsule well up between the edges of the skin. The wound is covered by iodoform cotton wool, and a large elastic pad of cotton wool is fastened over the front of the kidney, so as to steady and support it in its new position. The wound heals without suppuration, except that a track is sometimes left for a few weeks along the course of the drain tube. I would especially draw attention to a case of movable kidney in which the symptoms were of an unusual kind, and of a much more severe degree than I had ever previously seen.

The patient was a lady between 35 and 40 years of age, tall and spare, and of very active habits. For between two and three years she had been subject to attacks of abdominal pain, coming on without warning, and without reference to posture, exercise, diet, catamenia, excretion of urine, vomiting, diarrhoea, or other gastric or intestinal trouble. The pain was referred to the abdomen generally and not to any particular part of it, but it was accompanied by the severest cramp of the abdominal muscles, sometimes affecting the whole parietes, sometimes only a portion of one rectus, or of the oblique of one side. Whilst the pain lasted some part or the whole of these muscles were as hard as stone, and the patient writhed in agony, throwing her body forwards on to her thighs. Anodynes failed to give relief, so chloroform was tried, and its influence was often kept up for six to eight hours at a time. At first these attacks were at considerable intervals, but at length they became more and more frequent, until three severe ones occurred in the same week. The urine was always quite normal in all respects. She had seen several general and gynaecological physicians, but without finding a satisfactory solution of or remedy for her trouble. As long as she remained under my care, and the right kidney was replaced before her abdominal belt was applied in the morning, she had no attack; but as soon as she returned home, and the adjustment was left to herself, the pain and cramp returned with their former violence. Nephrorrhaphy was therefore performed in January last, and up to the present time she remains quite well, and describes herself as better than she has been for years. The nephrorrhaphy in this case has been a marked success, and has restored this lady to her former active life, and secured her deepest gratitude.

Dr. Playfair, who saw this patient three or four times, related

to me the case of a Colonial lady who twelve months before was staying in London to be under his treatment, and who was suffering in almost precisely the same way. One of her kidneys was markedly movable, but it was not at the time thought of as the cause of the symptoms. She returned home unrelieved, but now, as I understand from Dr. Playfair, he has no doubt that the mobile kidney was the cause of the abdominal pains, and that relief could be obtained by nephrorrhaphy.—*Brit. Med. Jour.*, Nov. 16, p. 1083.

80.—TREATMENT OF SOME FORMS OF CHRONIC SUPPURATING KIDNEYS BY PERINEAL DRAINAGE.

By REGINALD HARRISON, F.R.C.S., Surgeon to St. Peter's Hospital, London.

In connection with cases of obstructive urethral disorders in adult and elderly males, instances frequently occur where the backward pressure of the urine leads not only to dilatation of the ureters and kidneys but to extensive suppurations of these parts. In a certain proportion of these the removal of the obstruction in the urethra by systematic dilatation or otherwise is followed by a gradual improvement in the condition of the parts above the constriction, and the complete disorganisation of the kidneys is thus averted. In others, on the other hand, the dilated and suppurative condition of the kidneys is so far advanced that, though the calibre of the urethra may be artificially restored to its normal size, pus continues to be poured into the urine tract from above in considerable quantities. It is now some years since my attention was first directed to this class of cases where death occurred in the course of time, not because surgery had failed to dilate the stricture, or to provide against the obstruction caused by a large prostate, but by reason of the kidneys being gradually converted into chronic abscesses, and the ureters into suppurating sinuses. It seemed to me that by a more dependent and continuous process of drainage than any form of catheterism could provide, it would be possible at very little risk to save what remained sound of the secreting structure of the kidney, and thus to prolong life and materially add to the comfort of patients so circumstanced. The misery that persons endure who are voiding several ounces of pus daily from their kidneys in getting rid of the dregs which thus accumulate in their bladders is often very great. The surgery of the kidneys has not done much to remedy those chronic forms of nephritis where the suppuration proceeds from both organs, as we see in advanced cases of prostatic obstruction, urethral stricture, and in certain varieties of suppuration associated with renal tuberculosis. In some unilateral suppurations of the kidney, nephrotomy has proved of great value, but such a proceeding is clearly not applicable where both organs are similarly involved.

I have now operated in about ten cases of what I take to be chronic suppurative pyelitis, involving both kidneys, cases where, had only one organ been involved, I might perhaps have reached it from the corresponding loin. I have also seen several others in the course of my practice where perineal cystotomy had been performed by other surgeons, presumably for exploration of the bladder or for chronic cystitis, where the perineal wound had failed to heal. These, I believe, were for the most part instances of suppurating kidneys. And I base this conclusion not only upon the general symptoms presented in each instance, but from an observation which I have frequently made in my own cases to the effect that when drainage has rendered the urine normal and free from pus, it is almost impossible to prevent a properly made perineal wound closing on the drainage-tube being withdrawn, whereas when the urine remains loaded with pus, as we have in suppurating kidneys, it is absolutely impossible to bring about repair, and a permanent fistula results. It is now some years since I opened the bladder from the perineum and put in a drainage-tube in a case where the urine was largely charged with pus; but I was not able to discover the source of the suppuration. The patient was much relieved, though many ounces of pus were daily evacuated in this manner. After passing from my observation the tube was removed, and attempts were made to close the perineal opening. These, I learnt, were not successful, and it was necessary to return to the use of the drainage-tube. Eventually the patient died of exhaustion, when it was found that a psoas abscess had opened into a ureter. Though this circumstance was not discovered until after death, the means that were adopted, by providing an easy mode of escape for the pus, not only prolonged the life of the patient, but added materially to his comfort.

It will not be necessary for me to bring forward in detail illustrations of perineal drainage in the case of suppurating kidneys. There are, however, two or three points which I may thus summarise in reference to what I have observed.

1. That in the larger number of cases of simple suppurating pyelitis caused by obstruction below, the pus gradually and completely disappears as the resistance to the urine is removed. This is exemplified in the ordinary treatment of urethral stricture by dilatation or otherwise.

2. That some advanced forms of chronic double suppurative pyelitis from obstruction below, where the suppuration continues to be excessive after the obstruction has been relieved or removed, are best treated by an opening in the perineum where the drainage is free and dependent, and irrigation can be conveniently employed.

3. That perineal puncture best meets the requirements of these cases, and may be said to be free from risk.

Such an operation entails no prolonged confinement in bed. I

have had patients upon whom perineal puncture has been practised for urine drainage up and about within ten days of the performance of the operation by the use of a very simple contrivance. It consists of a soft rubber drainage-tube for retention in the bladder by a T-bandage, to which is attached a continuation-tube fitted with a stopcock, the end being retained by a belt round the patient's waist. When the patient desires to empty the bladder, he has nothing to do but to turn the stopcock and let down the tubing either between his legs or into a suitable receptacle. I first applied this method of draining the bladder, whilst the patient was allowed to go about, in a case I recorded, where the bladder was punctured through the prostate. The tube was worn for six weeks, and the patient, although eighty-six years of age, made a complete recovery, the prostate so shrinking in size as to permit again of normal micturition. He lived for several years afterwards without any further necessity to use the catheter. Professor Annandale has since drawn my attention to a somewhat similar contrivance, which I understand he has found extremely useful, and which I am now using. If the perineal wound is made tolerably accurately, there need be no leakage by the side of the tube. Patients may in this way be going about for some weeks until the state of the bladder or the urine shows that drainage may be discontinued and the perineal wound allowed to close, which it usually does rapidly.

For use at the time of operation and whilst the patient remains in bed, I have been recently employing the ebonite drainage-tubes recommended by Dr. F. S. Watson of Boston, U.S.A. They are provided with a movable collar by which they can be accurately adapted to the depth of the perineum, and are made in different sizes and lengths. They will be found very cleanly and unirritating.

The results of this method of treatment, so far as the kidneys are concerned, are almost entirely dependent upon the conditions present. Where the kidneys are little else than suppurating sacs with but a small amount of secreting tissue left, I have known persons go on for many months with great comfort, discharging their pus through a well-fitted drainage-tube instead of through the urethra. I have now a patient who is quite comfortable so long as he wears his tube arrangement, but as soon as it is withdrawn he gets uneasy, the urine becomes offensive and he has high temperature from imperfect drainage. Others, again, use the perineal opening as a convenient way for passing in their catheter tube at intervals to draw off urine and pus and for washing out the bladder, if this is necessary. I am occasionally seeing a patient upon whom I thus operated nine months ago for suppurating kidneys, resulting from an old stricture, who, though an invalid, draws off a residuum of one or two ounces of purulent urine daily with far greater comfort than he previously voided it

through his penis. Lastly, we have the satisfaction of meeting with instances such as the one I have more fully recorded where the drainage process is attended with complete success. Evidence is here afforded that even suppurating kidneys when not too far advanced may be made amenable to the application of the well-recognised surgical principles in the treatment of chronic suppurations—namely, a dependent opening and thorough drainage.—*Lancet*, Dec. 7, 1890, p. 1161.

81.—ON THE TREATMENT OF STRICTURE OF THE URETHRA,
BY INTERNAL URETHROTOMY, ETC.

By RUSHTON PARKER, F.R.C.S., Prof. of Surgery, Univ. College,
Surgeon to the Royal Infirmary, Liverpool.

About sixteen years ago, at a meeting of the Liverpool Medical Institution, I showed an instrument and described its use in narrow strictures of the urethra. It had long been tried in Paris as the well-known urethrotome of Maisonneuve. The simplicity of its construction, and the rapid ease with which it can be used, commend it specially to those who have become familiar with it, and who find that they can thus attain important ends by direct and uncomplicated means. The effect is the sudden widening of a stricture that can easily be kept dilated by the occasional passage of a large bougie. There is very little need to select cases, as it applies to all in which a filiform bougie can be passed. This bougie is fitted with a screw to the tip of a fine catheter composed of a steel tube split along its upper surface. The catheter is then pushed through the stricture, following as a guide the filiform bougie which coils up in the bladder. There only remains the passage of the knife that is slid along the grooved catheter, cutting the stricture at its roof, but commonly not injuring the elastic part of the urinary passage which slips over the smooth knob at the projecting apex of the cutting triangle. A good-sized catheter is then passed to empty the bladder, and generally a subcutaneous dose of morphia to allay or prevent spasm and rigors, the patient being left to micturate at will without further catheterism. Bougies are passed occasionally after a week has elapsed.

I generally perform the operation as the patient lies in bed, where I keep him for a single night, allowing him to get up and frequently to go out the next day, if he be well enough, and so inclined. This is quite sufficient in the majority of cases, and is important in the case of patients who are anxious not to lose time. Thus, after an operation performed on Saturday, the patient can return to work on Monday. Out of ninety-one operations, other than mere dilatation by bougies, performed upon strictured urethræ, I have practised internal urethrotomy according to this method sixty-four times. Three deaths alone have occurred, one

being that of a patient already moribund ; so that the actual mortality is two, or slightly over 3 per cent. in the series.

The gradual dilatation of hard unyielding strictures by slow stages in the frequent passage of bougies of the smaller sizes is a practice which I have never followed, and one to which I think there are many objections. Many a strong otherwise healthy man has been bougied off the face of the earth by persistent fiddling with a still narrow urethra. What has revolutionised the practice of lithotripsy but the total evacuation, then and there, of the crushed fragments, so that the irritated and perhaps damaged bladder may be free to discharge all its urine, as well as be free from fragments. So with stricture ; it is, I am sure, important that free power of micturition should be provided after all severe instrumentation. For that reason I have always preferred immediate or rapid treatment of narrow strictures. Not that gradual dilatation is always slow, for it can be performed, especially with the aid of an anæsthetic, almost as rapidly as any of the methods otherwise called "immediate," resulting in a few minutes in the painless passage of very wide instruments. No one hesitates to pass many bougies of increasing sizes, when they go easily and without increasing pain. It is only a step to go through the same rapid stages with the aid of an anæsthetic.

The operation of graduated dilatation has probably been much promoted since the introduction of Professor Lister's admirable metallic bougies, tapering through three sizes, and tipped with an olivary knob.

It thus comes that, whether by graduated dilatation or by other means, it is possible, and I think advisable, to quickly provide an easy outlet of urine from the bladder. One cannot be sure that the patient will not have a short, or even a sharp, suppression of urine at the kidneys, but there is at least abolished all cause of its retention in the bladder ; so that all the urine secreted may be voided without difficulty.

For obstinate cases of stricture it may not unfrequently be good practice to perform external urethrotomy. When the urethra becomes perforated near a stricture one may have various results, both local and general, according to the state of the urine, and according to the situation of the rupture, which determine the degree of disturbance set up. It is often supposed that the gangrene in a bad case of extravasation is the natural poisonous action of urine on the tissues, whereas it is only when the urine is already decomposed that gangrene results. I have seen several cases of urinary infiltration where neither gangrene nor other sign of decomposition existed. These were cases where the urine was sweet, and merely caused distension and collateral œdema, that quickly subsided on incising the perineum.—*Liverpool Medico-Chirurgical Journal*, Jan. 1890, p. 57.

82. —ON THE TREATMENT OF RETENTION OF URINE IN CASES OF ENLARGED PROSTATE.

By G. BUCKSTON BROWNE, M.R.C.S., London.

When the subject of retention of urine is over 50 years of age, with no previous history of urethral troubles, the cause of the retention is very probably prostatic enlargement. As a rule, no difficulty will be experienced in passing the catheter, but sometimes the difficulty will be very great. In prostatic retention metal instruments ought, if possible, to be avoided. If the usual soft instruments—the *coudée*, the olivary, and the vulcanised india-rubber catheters—fail to pass, I strongly recommend the *bicoudée* catheter. In a prostatic retention case uninjured by previous catheterisation difficulty, if encountered, is always at the very entrance of the bladder, and is due to the instruments catching in the prostate sinus or impinging upon a very prominent prostatic middle lobe. Sometimes the middle lobe so completely overhangs the vesical end of the urethra, that to enter the bladder the catheter has to travel from behind forwards (the patient being erect). In order to do this the catheter end must hug the roof or anterior wall of the urethra all throughout the passage. I have found no catheters so useful as the *bicoudée*, kept over-curved, in boxes such as I have specially designed. I have often succeeded in relieving a bladder by means of these instruments when all other instruments have failed. Next to these instruments I rank a good, soft, well-made silk-web *coudée*. This should be remembered, because, while the *bicoudée* catheters are not easily obtained, these are to be had at every instrument-maker's.

Sometimes in prostatic retention the greatest possible difficulty will be experienced in putting in a catheter, and if there has been much instrumentation, and the urethra is lacerated and bleeding, the surgeon's powers may be taxed to the utmost to bring the case to a successful issue. Under such circumstances, it must be remembered that, as there is no closure of the canal as in stricture, the passing of an instrument is only a question of skill, patience, and determination; and that without any exception an instrument ought to be passed. Often a large catheter of No. 14 English will pass with ease when all others have failed. Its point is too large to catch in the urethral folds and pockets, and it is too blunt to lacerate and become entangled in the middle lobe. This is the reason that a lithotrite is always an easy instrument to pass; it is large and blunt-ended, and in consequence of this I have had "lithotrite" sounds and catheters made which I have long employed with satisfaction.

When there has been great difficulty in introducing a catheter, and it is almost certain that the retention will recur, and especially if the surgeon resides far from the patient, it is right to tie

in a catheter. This tied-in catheter should always be a soft one, and, if the bladder has only been relieved by a metal instrument, it can frequently be replaced by a gum catheter, if the latter is passed immediately after the removal of the former, and if the soft catheter is moulded on an iron wire to the exact curve of the instrument which it replaces.

We have all had trouble in tying in a soft catheter so that it is retained, for patients will often manage to get rid of an inlying catheter in an extraordinary way, in spite of the most elaborate arrangements of tapes, bandages, and plaster. I was once almost beaten by such a case, and refer to it, as this is a very practical matter, and one which has evidently exercised the minds of surgeons, as witness Holt's winged catheters and the many apparatuses sold for retaining catheters. The patient I refer to wriggled about and turned over in bed in such a way that no catheter stayed in more than a few hours, and he was so reckless in his movements that to have tied in a silver catheter would certainly have sealed his fate. But after he had given his attendants several nights and days of trouble, I thought of keeping in a lead stilette, and with the happiest results. It was sufficiently solid to prevent the catheter bending upon itself and slipping out, while it was soft enough to yield to the patient's postures without the risk of penetration of the urethral walls or bladder, which assuredly would have been the case had an iron stilette or silver catheter been employed.

Another practical point in the treatment of prostatic retention is that in old catheter cases the patient may have worried a certain part of his urethra into a condition of stricture by rough manipulation, or by using rough and improper instruments. This condition may account for the disease called prostatic stricture, which is often spoken of, but which does not exist, the stricture being always not more than six inches from the external meatus, and therefore in front of the prostate. This condition we may call "catheter stricture," and it often consists of true stricture—that is, a non-dilatability of a certain part of the urethral wall, together with a certain want of polish or lubrication of the mucous membrane lining the implicated urethral wall, due doubtless to inflammatory changes. Such conditions are most trying sometimes, and may offer almost unsurmountable difficulty in the introduction of a catheter. As a rule, a very soft ended olivary catheter will pass better than any other. Great advantage will often be afforded by the use of the conical steel dilators, while in some cases it is well to tie a soft catheter in for a week so as to thoroughly rest the part; and occasionally I have been obliged to resort to internal urethrotomy with great success. (From a paper on Some Practical Points in the Treatment of Retention of Urine.)—*British Medical Journal*, March 15, 1890, p. 593.

83.—ON THE TREATMENT OF INCOMPLETELY-DESCENDED TESTIS.

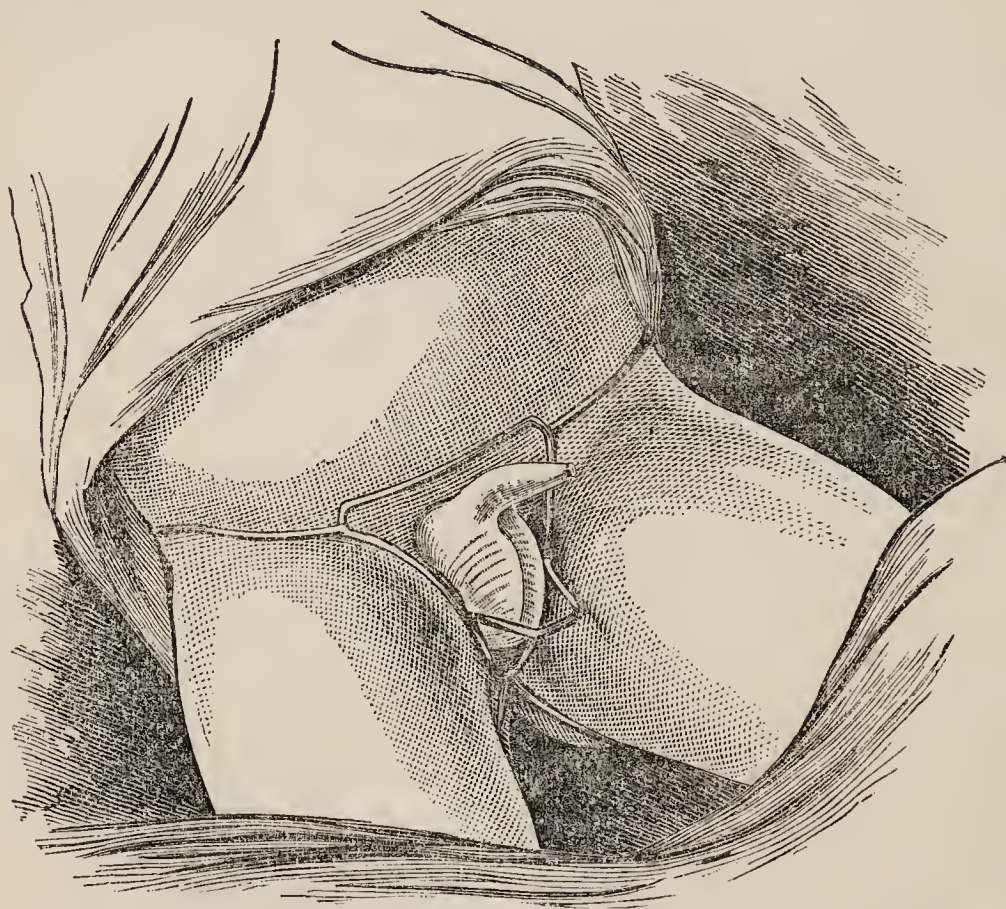
By W. WATSON CHEYNE, M.B., F.R.C.S., Surgeon to King's College, and the Paddington Green Children's Hospitals, &c.

On account of the grave inconveniences which attend the retention of testicles in the inguinal canal, I have, like a good many other surgeons, made attempts in several cases to bring them down into their proper position in the scrotum, but I cannot say that the results of these attempts have been very brilliant. The following case, however, in which I adopted a new method, and in which the result was practically perfect, may be of interest. I may say that I have tried most of the plans suggested, and have in all cases, after freeing the cord and testicle, stitched the latter to the lowest part of the scrotum by means of catgut, and afterwards placed catgut sutures in the external ring to prevent the testicle slipping up again into the inguinal canal. The immediate result is that as soon as the hold on the testicle is relaxed, it retracts to the external ring, drawing in the scrotum with it, thus forming a pucker, and the ultimate result is that the testicle lies at, or very little below, the external ring, in a position very little better than that which it formerly occupied. It struck me, however, that if we could keep up the tension on the cord for some days it would gradually stretch, and that then, when the tension was relaxed, the testicle would remain in its new position in the scrotum. The accompanying drawing will show the mode in which this object was attained in the case which I now relate.

I had a small triangular wire frame constructed which fitted into the perineum and over the pubes in the manner shown in the accompanying drawing, and was kept in its place by threads of carbolised silk, attached to each angle of the frame and passed round the abdomen and thighs. At a point opposite the apex of the scrotum a projecting bar was attached to the frame to which the thread which passed through the cord could be tied. The mode of operation in this case was as follows: The testicle and cord were freed and brought down into the scrotum, in which a pouch was formed for its reception. A strong catgut stitch was then passed through the structures of the cord immediately above the testicle, and both ends were brought out through a hole at the apex of the scrotum and tied around the projecting bar. Care was taken that the vas deferens should not be on the side of the cord through which the thread might cut its way. In this way any desired amount of tension can be kept up on the cord, and in this particular case I did not stretch the cord at the time of the operation as completely as I intended ultimately to do, but tightened it at the second dressing some days later. After stitching up the external ring and the wound, the whole arrangement was

enveloped in antiseptic dressings. I did not in this case pass the stitch through the apex of the testicle but through the cord, because I did not wish to set up orchitis, nor to destroy any of the testicular structure, while I thought the stitch would not cut through the cord so quickly as through the testicle.

Of course it is only in a certain proportion of these cases that any operation with the view of bringing down the testicle can be of benefit, and I should only attempt it in cases where the testicle was fairly movable in the inguinal canal and could be readily made to protrude at the external ring. Where the testicle is retained at the upper part of the inguinal canal, the cord very short and the testicle much atrophied, I believe it is best, in view of the serious trouble to which it may afterwards give rise, to excise it at once and bring together the walls of the inguinal canal. The following is the case to which I allude.



H. E., aged 11, was admitted into the Paddington Green Children's Hospital on February 27th, 1889. Both testicles were lying at the lower part of the inguinal canal, and could be readily made to protrude at the external ring; they had been in this position since birth. On March 1st I operated on the right side, but I did not employ the plan above described. In order to carry out the same principle, however, after stitching the testicle to the bottom of the scrotum, and while the assistant held it in

that position, I passed a catgut stitch through the skin at the junction of the scrotum and thigh, through the cord just below the external ring and through the skin on the other side of the scrotum, with the view of, so to speak, anchoring the testicle in the scrotum. The wound healed by first intention, but the ultimate result has been that though the testicle is considerably below the external ring, it is not in its proper position in the scrotum.

Before operating on the left side, I therefore had the wire frame described above constructed, and on April 2nd I operated on the left side in the manner which I have mentioned. The dressing was changed next day, and everything was looking well; patient comfortable. It was again changed on the 6th, and the catgut tightened as much as possible; the wound had healed. On the 13th the stitch was removed, the apparatus left off, and a small collodion dressing was fixed over the puncture through which the stitch had passed. The testicle hardly receded at all when the stitch was divided, and there was a good deal of thickening about the cord and the external ring, which no doubt helped to keep things in position. The patient was allowed to get up on the 15th, and went home on April 22nd. He was exhibited at the Medical Society about ten months later, when the left testicle occupied its normal position in the scrotum.--*British Medical Journal*, Feb. 15, 1890, p. 351.

AFFECTIONS OF THE SKIN, ETC.

84.—ABSTRACT OF A LECTURE ON ACNE.

By J. FRANK PAYNE, M.D., Physician to St. Thomas' Hospital.

In this lecture Dr. Payne described the disease in its various forms, and in referring to the cause of the perverted secretion which produced it, he showed that the distribution of the comedones from which acne punctata arises was very remarkable, and threw considerable light on its causation. He pointed out that they appeared most frequently on the face, and to a slight extent on the lateral part of the neck, but never occurred on the adjacent portion of the neck above the clavicle nor on the hairy scalp, and only very rarely on any parts covered by hair. While they appeared on the sternum and extended down sometimes to the waist or abdomen in men, and showed themselves to some extent on the scapular, deltoid, and spinal regions of the back, they were entirely absent on the flanks. On the limbs they were rare, but occurred, if at all, on the front of the thigh and on the posterior aspect of the arm. All these parts, though not absolutely hairy, were, on the other hand, not entirely free from hair, but abounded

in rudimentary hair structures and in sebaceous glands connected with hair. The parts affected were those which, during the course of evolution of the human species, natural selection had succeeded in most instances in almost entirely depriving of their hairy investment, and there sebaceous glands were numerous. Another factor in determining the cause of this disease was the period of life at which comedones were met with. They were quite unknown in young children, appeared in adolescence and puberty, and seemed indicative of developmental changes, not necessarily inflammatory, affecting these rudimentary hair structures. A few cases of acne punctata occurred in unusual parts of the body in children. About four years ago many such cases in children were found in the London hospitals. In one case a healthy lad of thirteen, having no sign of acne in its usual positions, had across the upper part of his forehead an eruption of plugs or comedones thickly clustered together; a few were inflamed, and the skin was oily with sebaceous secretion which passed backwards even into the hairy scalp, clearly resembling the ordinary comedones without their usual distribution. Some thought it was due to an irritating substance contained in the lining of the hats. That might have occasioned it on the forehead, but it occasionally developed elsewhere on unusual parts—for example, on the legs. They were generally connected with special glandular structures undergoing rapid development, and it might be that some chemical alteration of the blood tended to produce them.

Acne vulgaris was distinguished by the comedones being inflamed, partly from some irritant in the already dilated gland, although this seemed hardly enough to account for the fact that only about one in twelve might be inflamed. The chief cause was believed to be irritation from the micrococci generally found on the skin, but which did not grow unless under some favouring circumstances, like dampness or friction. Their mere presence on the surface was not sufficient to excite inflammation, but when the skin was unhealthy and the nutrition lowered, or when the skin was subjected to injury or friction, then the inflammation began. The presence of saccharine materials in the blood had a great deal to do with the growth of these organisms in the skin, evidence of which was found in the occurrence of boils in diabetes, and he was persuaded that excess of sugar in the food had very much to do with suppurating skin diseases in children. This form of acne vulgaris might also be induced by food of a decomposing nature, and by materials which were produced and reabsorbed in the intestine, a circumstance which explained the well-known and recognised connection between the severer forms of acne and a too rich diet, wines containing unfermented sugar and beer being notorious in producing the spots. When the inflammation spread to the surrounding connective tissues a very decided scar was

left (*acne indurata*), a proof to some that the inflammation was set up by bacteria. In *acne varioliformis* it appeared like a small-pox pustule, and was exceedingly like a certain syphilitic affection of the face. Arsenical treatment of this form was valuable both as a means of cure and of diagnosis. The form called "*acne artificialis*" was due to irritants, either external, like tar, or internal, like the bromides and iodides, did not always start from comedones, and occasionally assumed such extraordinary developments resembling tumours as to lead some years ago to its description as a new form of disease.

The treatment was simple, but not always successful. Patients should be told to wash the parts at night with hot water, using a strong form of soap—soft soap in small quantities where the skin was thick. Friction with a towel should be applied to get the skin to act well and induce perspiration. If the comedones were abundant and were not removed by this, they might be squeezed out with any instrument which might be found suitable. Washing should precede the squeezing, and some lotion or application should be put on immediately afterwards, as the reappearance was due partly to the pressure irritating the neighbouring glands, and partly to some infecting material which spread over the skin. In *acne vulgaris* this should be supplemented by certain drugs, of which sulphur was by far the most efficacious. Absolutely dry sulphur did not affect the tissues at all, but only began to act when it was absorbed, probably in the alkaline form, and that seemed to be the reason why they found alkaline sulphur lotions the most effective. To meet this, sulphur and lime water were by far the most suitable, the strongest form of which was precipitated sulphur (fifteen grains), glycerine (half a drachm), spirit of camphor (five minims), and lime water to an ounce, which might be diluted if the skin was delicate. When the mixture had been kept a little while it would form a sulphuretted lime solution. The lime water was rather strong for some skins, and rose water might be added. This should be applied with a sponge, cotton-wool, or a rag, and allowed to dry, and then sponged off in the morning, and the skin should not then be washed. If ointments were used they should not be too strong. The sulphur ointment of the B.P. was far too strong for these cases; fifteen grains of sulphur to the ounce of soft paraffin or benzoated lard, with perhaps ten minims of carbolic acid added, would be found more suitable. In order to make it alkaline, fifteen grains of carbonate of potash might be added to the ointment. This treatment, though it might not entirely remove the disease in the case of young people, would succeed in curing attacks as they came on. If there was inflammation, the sulphur might be found too strong, and it would be necessary to use the perchloride of mercury, half a grain, and almond emulsion to one ounce, which formed a very

pleasant application. Lead or zinc lotions might be used where there was much inflammation, but lead was not a desirable application for the face, as gas sometimes caused it to turn black, and it should certainly never be used in combination with sulphur, a mixture which formed a favourite wash to darken the hair. Zinc and bismuth seemed to have equal effects on the skin; twenty grains of subnitrate of bismuth, one drachm of glycerine, and rose water to one ounce, or oxide of zinc might be substituted for the bismuth. In the internal treatment we were guided by the condition of the patient, and change of diet would in some cases be sufficient to stop the suppuration of the skin. Beer and sweet wines should be avoided, and patients should be kept very persistently on a purgative regimen. Magnesia and similar purgative salines were recommended in the form of Friedrichshall water as being very good for clearing the face. Sulphur internally was very beneficial and had a remarkable effect in acne indurata. In very anæmic people, iron combined with some laxative should be given. A mixture composed of two grains of sulphate of iron, five minims of dilute sulphuric acid, and twenty grains each of magnesium sulphate and soda sulphate, in an ounce of peppermint water, was exceedingly useful for these patients. Arsenic also benefited them and stimulated the skin. Some cases of this disease seemed to be benefited only by a good deal of really hard exercise. Gutta rosea or acne rosacea and its hypertrophic form were briefly alluded to. The outward manifestations of this form might be cured if they could not cure the original conditions. It occurred mostly in youth or middle life, and was related to derangement of some abdominal organ like the stomach or the uterine organs. A reflex hyperæmia was produced by dyspepsia or derangement of other organs, and on the basis of this other inflammations occurred, and were largely kept up by the presence of an irritating substance in the blood. In treating this form the internal organs should be examined; and if the stomach were deranged, bismuth was far more suitable than any other medicine whatever, and fifteen to twenty grains of the subnitrate two or three times a day, with tragacanth and peppermint water, might be given. A little carbonate of soda might be added, although it causes the mixture to effervesce while it is being mixed. If the menstrual functions were irregular, cure was not obtained until the morbid condition was set right. Dr. Jamieson of Edinburgh regarded bromide of potassium as being the best remedy. The external treatment should consist of mild bismuth or zinc lotions, and the pustules might be incised, and a very small quantity of carbolic acid or nitrate of mercury applied. After a little while a mild form of sulphur lotion was useful. The skin began to peel, and the disorder was cured. As regards acne rosacea hypertrophica, the treatment was entirely surgical.—*Lancet*, Feb. 15, 1890, p. 338.

85.—ON THE USE OF TAR IN THE TREATMENT OF ECZEMA.

By JONATHAN HUTCHINSON, F.R.S., F.R.C.S., Senior Surgeon to the Hospital for Skin Diseases, Blackfriars, London, &c.

If I were required to name one remedy only for eczema, I would choose tar ; if allowed to choose two, tar and lead ; and if three, tar, lead, and mercury. Yet for a disease which presents so many phases and varieties both in kind and stage as does eczema, it may seem almost absurd to speak of single remedies. Making, however, allowance for such considerations, I yet hold to a strong belief that tar is the specific for all forms of true eczematous inflammation of the skin. The chief reason that it is not accepted as such is that it is commonly employed far too strong. If weak enough, and used freely enough, tar solutions will, in my experience, almost invariably cure eczema. Common tar water and solutions of carbolic acid are very useful, and come, perhaps, to nearly the same thing ; but the remedy which I find most convenient and most certain is the solution of coal tar in alkali sold under the name of *Liquor Carbonis Detergens*. If I have been induced by lack of patience to prescribe any other remedy, I find almost invariably that I return to this. I use it, however, in extreme dilution. A teaspoonful to a pint of warm water is a common strength, but often it is prescribed much weaker than this. It should be so weak that it does not cause smarting, and it should then be employed like water. The parts affected should be bathed with it, and rags soaked in it should be laid over them and frequently re-wetted from outside. On no account should oiled silk be used, or at any rate, not in large pieces. It invariably soddens the part, and spreads the eczema. A few small bits may be put here and there to prevent too rapid drying, but it is far better to do without and to rely upon very frequent re-wetting.

Eczematous inflammation is usually, according to my creed, a local and self-infecting disorder. It begins, in a predisposed and irritable skin, by some local excitement, and it prospers under the laws of self-contagion. In most cases the state of the blood has but little to do with it. It cannot usually be cured by internal remedies alone, whereas in nine cases out of ten, it may be cured by local treatment, without any alteration in the patient's diet, or any use of internal drugs.

It is not at all intended in what has just been said to dissuade from attention to diet and the prescription of internal remedies in eczema, but merely to assert that they are of no importance in comparison to external means. I always in eczema cases advise the avoidance of sugar, fruit, and milk, and very often give salines, and in acute cases even tartarised antimony. My friends are often astonished at the prohibition of milk, regarding it as the mildest and least irritating form of food. The testimony of not a

few patients has, however, convinced me that it often makes the skin itch, and aggravates eczema. Further, if we reflect, it is the infantile and milk-fed period of life which is the most liable to suffer from eczema. The influence of fruit, and especially of strawberries, raspberries, and of all kinds of fruit eaten with the addition of cane-sugar, is very great in causing the skin to be irritable. It is doubtful whether they ever cause eczema, but they cause scratching, and this brings out eczema. The main agents in the production and perpetuation of eczema are scratching and rubbing. The patient who has strength of will to abstain will usually get well, and no treatment will cure those who cannot. It is often of little use to insist on its avoidance unless we provide some substitute, and it is here that solutions of tar come in so usefully. They abate irritability. A good bathing is as efficient in giving relief as a good scratching, and is not followed by any reaction. One reason that eczema is so difficult of cure in infants is that they cannot be restrained from tearing the skin, and often undo in a few minutes all that a week's treatment had effected.

Weak tar lotions may be used for eczema without much regard to stage. In a few cases, however, of very acute inflammation, it is preferable to use a lead lotion for a few days, and to add tar only when the congestion is a little abated. The cases are, however, very few in which I omit the tar even at the beginning. Very often, indeed, my lotion consists of liquor carbonis and liquor plumbi diacetatis in equal proportions, diluted as above directed.

Arsenic, I think, rarely does any good in eczema, and often irritates. Weak sulphur baths, as at Harrogate and Aix la Chapelle, often cures chronic cases, chiefly, I think, those of dry eczema, but I have seen severe cases not only uncured, but apparently made worse, from both places.

In conclusion, I repeat that tar *properly diluted* seems to me to be almost a specific for the eczematous type of dermatitis.—*Archives of Surgery*, Oct. 1889, p. 164.

86.—NOTES ON THE CURE OF RINGWORM.

By JONATHAN HUTCHINSON, LL.D., F.R.S., F.R.C.S., &c.

No doubt there are many good plans of treatment for ringworm, and some remedies which are in an especial manner adapted for particular stages and conditions of the disease. My experience has been restricted almost entirely to chronic cases, and to such as have resisted treatment. I have seen few cases or none in the earliest stage. The treatment which I learned as a student (from the late Mr. Startin), and which was very successful, was the blistering of the patches every ten days or fortnight with a vesicating fluid. It has the disadvantages, however, of being painful, and of bringing the unwilling little patient frequently under th

surgeon's hands. In private consultation practice it is almost impracticable, and I have gradually, after trials of many other remedies, settled down in tolerable content upon a plan which relies chiefly upon chrysophanic acid. My prescription, with the very rarest exceptions, is as follows:—The liquor carbonis detergens (Wright's) is used as a wash in the proportion of a teaspoonful to a pint of hot water. With this the scalp is to be well washed twice a week, and all scales and crusts removed. The hair is to be shaven or cut close. The curative ointment, which is to be rubbed in more or less freely, according to its effect, and night or morning, or every night only, by the same rule, is composed as follows—

R. Acid. chrysophanic ʒj; hydr. amm.-chl. gr. xx; lanoline ʒj; adip. benzoat. ʒvi; liq. carbonis deterg. ℥x. Misce fiat ung.

This ointment is strong enough if freely used, to make most scalps redden and swell, and it may occasionally cause oedema of the eyelids and face. The latter effects occur only when it is too freely used. The child should wear a linen cap, and there is then but little inconvenience from staining. The secret of success consists in the patient continuance of the same remedy. I usually promise with great confidence a cure to the persevering, but never a rapid one. It is only the impatient who are disappointed. Those who at the suggestion of their friends, medical or otherwise, change every few weeks from one remedy to another, find ringworm almost incurable, but it is not so with those who go on with the plan indicated; such at least is my impression. I hear now and then from my medical friends that “there is nothing which will cure ringworm,” and that patients in whose cases I have been consulted have not got well; but against these I place an overwhelming number who are most thankful for the result obtained. I have good reason for continued confidence in the plan. In the rapid cure of chronic ringworm I have no faith. In all these the fungus has got into the hairbulbs and walls of the follicles, and it can be killed only by perseverance. I have never seen a case in which chrysophanic acid, carefully and well used, did not keep the disease in check whilst it was employed. The error usually consists in leaving off too soon. When the case appears to be cured, and the hair is allowed to grow, a weaker ointment should still be used twice a week over the whole scalp to prevent relapse. For this purpose ten grains of the acid, the other ingredients remaining the same, will suffice. It should be continued regularly for six months without interruption. Epilation, as so patiently practised in the Hôpital St. Louis, in Paris, is a very valuable aid in the treatment of ringworm. It is so troublesome, however, that I have found it in consultation practice hardly available, and am usually content to have the scalp shaved once in ten days. It is important that the ointment should be rubbed occasionally all over the scalp, as well as into the patches themselves.

A clergyman who obtained my prescription for his children many years ago, and of whom I heard nothing for long afterwards, subsequently came under my care for another ailment. He then reminded me of the ringworm cases and told me that the ointment had not only cured quickly his own children, but all the cases which had occurred in his parish since. The surgeon to a workhouse school, for which I was consulted on account of long-continued prevalence of ringworm, told me that the ointment had proved much more effectual than anything he had tried before, and that he had since had no reason to try anything else.

Kerion presents almost the only phase of ringworm for which I vary my prescription. In it epilation and the use of a strong evaporating lotion (lead and spirit), is the best plan.

When ringworm prevails in a family or school, I believe that it is important to use oils or pomades for those not affected. To keep the hairs greasy seems to be an efficient means of protecting them. The same measure probably is useful in preventing the spread to other parts of the scalp in cases in which a few patches only are present. It is quite possible that the increased prevalence of ringworm of late years may in part depend upon the change in fashion which has driven out the domestic hair-pomades which were formerly so much in vogue.—*Archives of Surgery*, Jan. 1890, p.276.

87.—ON A CASE OF URTICARIA PIGMENTOSA.

By HENRY W. STELWAGON, M.D., Philadelphia.

In looking over the literature of urticaria pigmentosa the impression was forced upon me that there was in almost all the published cases a marked similarity in the objective phenomena: the subjective symptom of itching was found, it is true, somewhat variable, and in a few cases, as in that about to be reported, practically *nil*. Itching is to be considered as almost a *sine qua non* of urticaria, and this is always of an annoying character. Indeed, in studying the cases of urticaria pigmentosa carefully, I am constrained to confess that while many of the symptoms point to a close resemblance to true urticaria, in other respects they are so different that as yet their identity can by no means be admitted. This impression is further strengthened by the fact that these anomalous cases stand so prominently divided from simple urticaria, that midway cases (if the expression may be allowed) are not encountered—it is either urticaria, with its evanescent and characteristic wheals, &c., or it is urticaria pigmentosa with its usual symptoms. This sharp division is not in accord with our experience in other cutaneous diseases. The following brief notes, therefore, I wish to put on record, so as, perhaps, to add something to the final status of these cases.

The patient, a boy of six years, came under my notice in the

early part of last February. He was a blond, of robust physique, and in perfect health. In fact, no departure from health could be elicited other than the skin eruption for which advice was sought. The parents were also free from disease. In earlier life, and also in the summer preceding the patient's birth, the mother had had urticarial attacks of the usual evanescent type, and due to dietetic indiscretions. The boy's sister, the only other child, had always been free from any cutaneous disease.

The eruption began, as the father stated, after two unsuccessful attempts at vaccination, when the boy was eighteen months old. Since that time, a period of four and a half years, the disease had continued uninterruptedly. The eruption appeared without any attempt at regularity, new lesions, few or in numbers, making their appearance from time to time. The covered regions of the body were the parts upon which the spots were most abundant. Lately, however, there had been a strong disposition to appear on the face, and it was this disfigurement chiefly that had made the parents solicitous of remedial help. The lesions had always been numerous about the neck, sides of the trunk, and about the genitalia; until recently comparatively few had been on the limbs and face. The eruption has been active ever since its first appearance, the older lesions eventually disappearing without leaving a trace. Itching had never been a troublesome symptom.

At the time of examination the eruption was found to be more or less general, being most abundant on the lateral portions of the chest and abdomen, on the neck, on the under part of the lower jaw, on the forehead and temples, on the back of the neck well up to the post-aural regions, and to a less extent on the arms and legs. On the face proper there were comparatively few. The eruption consisted of pin-head to large pea-sized rounded, some elongate, reddish-yellow, papule-like elevations; many similar elevations surmounted with a small vesicle with a somewhat thick and light-yellowish epidermal covering; flattened, elevated, small and large pea-sized yellowish or salmon-coloured lesions; small spots of pale-yellowish pigmentation, with slight, if any, elevation; spots of similar size, of the colour approaching the normal skin, with possibly a yellowish tinge, over which the epiderm appeared slightly loose and wrinkled, and in some the follicular outlets seemed enlarged, giving the appearance faintly similar to the slight atrophy which follows lupus erythematosus. Some of the retrogressing lesions, those which were still somewhat elevated, bore a slight resemblance to both lupus deposits and to xanthoma. The most prominent colour was yellow, somewhat on the salmon. In the early life of a lesion, however, a reddish tint was probably the more noticeable. The first appearance of a lesion was, in fact, somewhat similar to the wheal of an ordinary urticaria, although smaller and less inflammatory. Such beginning lesions were to a

slight degree itchy, but this was evanescent and never marked or persistent. The skin on being rubbed exhibited a slight tendency to become urticarial.

This was, in brief, the extent and character of the eruption when first seen, and it may here be added also that in the examinations made subsequently the same essential phenomena presented. The lesions, no doubt, finally disappeared, probably in the course of months, without leaving a trace; at least this must be inferred from the fact that the disease had already lasted four and a half years, with continuous outbreak of new lesions, and yet with so comparatively few of the atrophic-looking and the freckle-like spots remaining. These last-named would undoubtedly give place to normal skin. The fact of the total disappearance of the lesions the father also attested.

An observation extending over some weeks showed the eruption in its formation and evolution as follows: The lesions began as small rounded, solid elevations, reddish-yellow in colour, developing suddenly or in the course of several hours or days. On many of these a more or less perfect attempt at vesiculation occurs. The vesicle is small and the epidermal covering thick, giving the vesicle a yellowish colour, although the contents remain clear and purely serous. The vesicle disappears by absorption. The spots, as a rule, become a trifle larger, after they are apparently fully developed; they flatten out, and then look like flat, pea-sized yellowish or yellow-brown maculo-papules, being a part apparently of the skin itself; suggesting in some respects a slightly elevated hairless pigmented nævus, and in other respects a superficial flattened xanthoma. Still further flattening gradually takes place, and the epidermis covering the lesion assumes a slightly loose or wrinkled appearance, in some with a tendency toward thinning or atrophy, with also an apparent, and probably true, enlargement of the follicular outlets, suggesting, as already remarked, a faint resemblance to the sieve-like atrophy of lupus erythematosus. These characters—the atrophic and wrinkled appearance and the enlargement of the follicular orifices—could only be seen, however, by close inspection, and were not, therefore, in the slightest degree striking or conspicuous. Indeed, unless the skin were carefully examined these later changes would entirely escape observation. Nor were these characters an essential part of each disappearing lesion. Many spots apparently disappeared without this preliminary atrophy taking place. Whether atrophic or otherwise, however, no permanent trace of the eruption was left, the skin finally assuming its natural condition and colour. These several stages—the formation, evolution, and disappearance of a lesion—required weeks, and doubtless in some lesions months. As it was, unfortunately, impossible to gain the parents' permission to excise a lesion, no microscopical examination could be made.

A few words as to treatment. In the reported cases of this disease treatment, except the partial relief to the itching by external applications, was practically negative, and the same may be said indeed in regard to the case here given. Treatment is essentially theoretical and experimental, and must necessarily remain so as long as the nature of the disease and its underlying causes are unrecognized. Before coming under my observation this boy had been variously treated, in one instance taking fair doses of arsenic continuously for several months, but without the slightest effect upon the eruption. With the idea of possibly influencing the vaso-motor nerves and indirectly the disease, the fluid extract of ergot was prescribed, at first in ten minim doses t. d., later increased to twenty minims, and the same was continued for five weeks, but the condition was in no way modified or improved, the older lesions gradually changing as formerly and new lesions appearing from day to day and week to week. This was now discontinued, and the phosphates in combination with cod-liver oil given as a nutrient tonic. I may add that there was no other indication for this than that the boy was of the appearance and complexion so common to strumous subjects, who while presenting a tolerably robust appearance are lacking in nervous tone and muscular vigour. At the end of a month the disease appeared less active, but this was in all probability, however, independent of treatment, as not infrequently before, so the father stated, there had been times when the disease was comparatively quiescent. The same remedies, with the addition of a small tonic dose of arsenic, were continued, and so far as I have been able to learn this treatment was followed for several weeks longer, but as it was without further appreciable effect, was discontinued, and other advice sought.—*Amer. Jour. of Med. Sciences*, Dec. 1889, p. 594.

88.—REMARKS ON SCLEREMA AND ŒDEMA NEONATORUM.

By J. W. BALLANTYNE, M.D., F.R.C.P.Ed., Physician for the Diseases of Children, Cowgate Dispensary, Edinburgh.

[Dr. Ballantyne's paper opens with the narrative of an example of each of the conditions under consideration, and also an interesting historical notice of the diseases.]

Sclerema may be provisionally defined as a rare disease, occurring most commonly in the newborn infant, characterised by induration of the subcutaneous tissue, and being little amenable to treatment. Until the pathology of sclerema and the nature of the physiological processes underlying its pathology are more fully understood, a more scientific definition than that given above is, I think, impossible.

Œdema neonatorum may be defined as a disease of the new-

born infant, characterised by serous infiltration of the subcutaneous tissue, due in most cases to infantile cardiac, renal, or pulmonary disease. *Oedema neonatorum* is, therefore, manifestly more truly a symptom of several diseases than a distinct pathological entity; but until we have a fuller acquaintance with the symptomatology of cardiac, renal, and pulmonary disease in the newborn, and until we are better able to diagnose one variety of oedema from another, we must be content to study under one designation the characteristic features common to all.

Morbid Anatomy.—I was able to make a post-mortem examination of the scleremic infant within twenty-four hours after death and I then found, in addition to the conditions of the heart, vessels, and viscera peculiar to the newborn infant, the following pathological appearances. The lungs were in a state of partial atelectasis, their posterior and lower portions being undistended with air; the abdominal viscera, especially the spleen, liver, and kidneys, were markedly congested; and the brain and its membranes were also congested. The thymus gland appeared to be normal. It was in the skin and subcutaneous tissue that the most marked pathological changes were to be found. The skin over the back, shoulders, thighs, and to a less extent over nearly the whole of the body was firm and tense, could not be pinched up between the fingers, and could not be made to pit on pressure. On making a section of the skin and subcutaneous tissue with a knife a sensation was conveyed to the hand like that which one gets when one cuts bacon rind; and, on looking at the cut surface, one noted that the subcutaneous cellular tissue had a peculiar white glistening aspect quite unlike the yellowish appearance of the subcutaneous adipose tissue in the healthy infant. No serous fluid could be expressed from the cut surface, and to the naked eye the part did not appear to be congested.

In the microscopic appearances of the skin and subcutaneous tissue from the back of the scleremic infant, the outstanding feature was the presence of a large quantity of brightly stained connective tissue which formed a network in the meshes of which lay the fat corpuscles. This connective tissue was very abundant and subdivided the subcutaneous adipose tissue into numerous patches of varying size. Not only were the bands of connective tissue increased in number, but they were also in many cases much thicker than is normal. In the true skin were seen the roots of a few hairs, and one or two sweat glands with slightly convoluted ducts. Such were the appearances noted with a magnifying power of eighteen diameters. Under a higher power it was seen that the fat cells had in some cases lost all their fat, and that in no case was the normal amount of oil present. The nucleus in all was clearly visible, and there was often also a rim of protoplasm underlying the cell wall. The cells making up the bands of con-

nective tissue could be very clearly differentiated, and here and there were seen small vessels, surrounded by numbers of leucocytes, and pushing their way, as it were, into the clumps of fat cells. The papillæ were not well marked, and the outlines of the cells of the rete Malpighii were ill defined. The horny layer appears to be normal. The blood vessels in the papillæ were very small, but those in the adipose tissue were relatively large and had, as has been noted, a small cell infiltration surrounding them. Parrot, whose description of the skin agrees in the main with that given above, considers the lesion to be a drying up of the skin with a consolidation of its layers and an atrophy of the adipose tissue. I believe that there is something more than a consolidation of the layers of the skin and atrophy of the fat cells, and am of opinion that there is an increase in the number and thickness of the connective tissue bundles, and that these bundles of fibres subdivide the masses of fat cells into smaller clumps and by pressure cause their atrophy. The starting point in the process is, I believe, the penetration of a capillary into a mass of fat cells, this capillary being accompanied by leucocytes which give rise to fibrous tissue which subdivides the mass of fat cells into smaller islands. The primal pathological factor may be, and probably is, a trophic lesion of the nervous system. This is a matter of hypothesis; but the hypothesis is strengthened by the fact that in three cases of sclerema reported by Dr. Angel Money there was an accompanying paralysis, and by the resemblance which exists between sclerema and myxœdema.

The pathological appearances found in the infant with œdema differed in many respects from those which have been described in the sclerema case. Whilst the heart, liver, and spleen were normal, the kidneys showed on section an enormous degree of congestion, more especially of the cortex. The lungs, as in the sclerema case, were in a state of partial atelectasis. The skin of the back, abdomen, external genitals, and legs was of a bluish colour, had a soft feeling, and pitted readily on pressure. On making a section of the skin and subcutaneous tissue a somewhat congested surface was revealed, and a large quantity of watery serum drained away from the tissue. On microscopic examination, the masses of fat cells were seen to be held together in a loose manner by thin bands of connective tissue, and so loose was the connection that in many places the fat cells had fallen out of the section. It was very difficult to obtain a satisfactory section of the subcutaneous tissue in this case, a circumstance which contrasted very forcibly with the ease with which perfect sections of the skin and underlying tissue were obtained in sclerema. In the œdema section the tissue was opened out from the presence of the serous fluid, whilst in the sclerema case the tissue was indurated, and the fat cells were held in position by the hypertrophied con-

nective tissue framework. The fat cells in oedema as in sclerema are atrophied, and the appearances of the cuticle and rete Malpighii are similar in the two diseases. The difference, then, appears to be in the subcutaneous adipose tissue layer.

The microscopic examination of the kidneys in the oedema case revealed the cause of the subcutaneous serous infiltration, for both kidneys were enormously engorged, the congestion being especially well marked in the cortex, and in both kidneys was there cloudy swelling of the cells of the tubules, and small cell infiltration of the Malpighian bodies. There was, therefore, evidence of the presence of tubular and glomerular nephritis, and this fact, taken in conjunction with the suppression of urine which was noted clinically, leads me to the conclusion that in this case of oedema neonatorum, the disease and the death were due to the kidney lesion. The infant died two days after birth, and the renal changes found might quite well have arisen in that time, so that I do not think there was here any foetal nephritis, at the same time the fact that the mother was suffering from bronchitis and pneumonia at the time of her confinement is noteworthy. No doubt there occur cases of oedema neonatorum in which the disease is due to lesions other than nephritis, such as cardiac and pulmonary diseases; but in this case the nephritic process was evidently the starting point of the pathological state. Oedema neonatorum I regard as a subcutaneous oedema, quite comparable to that which occurs in the adult and due to the same causes, whilst sclerema must, I think, be regarded as a disease peculiar to the newborn infant or young child, and most probably of the nature of a trophoneurosis.

Clinical Features.—In both sclerema neonatorum and oedema neonatorum the patients are weakly, often prematurely born, and in both diseases the body temperature rapidly falls below the normal. In sclerema the peculiar condition of the skin and subcutaneous tissue is found most markedly on the back, shoulders, and thighs, whilst in oedema the area of distribution corresponds with the lower part of the abdomen, the genital organs, and the back and legs. In sclerema the skin is firm and tense, cannot be raised in folds, and does not pit on pressure; in oedema, on the other hand, the skin is soft and boggy, can be pinched up between the fingers, and pits readily on pressure.

Etiology.—Very little is known concerning the etiology of *sclerema*. The disease occurs usually in prematurely born and weakly infants, which have been placed under bad hygienic conditions as to food, clothing, &c. It is, therefore, easy to understand how illegitimate foundlings are specially liable to it. It is most common in the winter months; but it is a rare disease in this country at any time of the year. It may occur in syphilitic infants,

but any direct connection between the two diseases remains to be proved. With regard to œdema it may be said that in many points the etiology is similar to that of sclerema. It occurs also in premature infants placed under bad hygienic conditions, and most probably cold has a powerful effect in leading to the renal, cardiac, and pulmonary states which are so often associated with it. It will be noted that both the cases recorded in this paper occurred during the winter months.

Diagnosis.—If attention be paid to the clinical features which have been enumerated, the diagnosis between sclerema and œdema ought not to be difficult. The possibility of sclerema being mistaken for tetanus neonatorum is not very great, for the rigidity of the limbs is never so great in the former disease, and the temperature curve in the latter disease will also serve to distinguish the two diseases.

œdema and erysipelas might possibly be mistaken for one another, and indeed œdema may occur during the course of erysipelas, but here also the condition of the temperature will serve as a diagnostic guide.

From syphilitic roseola œdema may be quickly differentiated by the result of antisymphilitic treatment.

It is possible that œdema neonatorum and general dropsy of the foetus may be confounded; but the confusion is more likely to arise in medical literature than in medical practice. General dropsy is a disease of the foetus and not of the infant, and the observations of Smith and Birmingham seem to show that the disease is due to absence of the thoracic duct and of the lymphatics of the mesentery and skin. I saw one case of general foetal dropsy three years ago, and, although I am unable to speak certainly with regard to the thoracic duct, yet the appearances of the skin and mesentery I found to agree entirely with those figured by Smith and Birmingham.

Prognosis.—The prognosis is very grave in both diseases, very few scleremic or œdemic infants recovering; but occasionally a case of recovery is reported in the medical papers, for example, Barrs's case in the *Journal*, May 4th, 1889.

Treatment.—In both diseases the infant affected should be placed in an incubator. Friction with a stimulating liniment is indicated as is also "*gavage*." In cases of œdema where there is suppression of urine it would be well to try the effect of digitalis fomentations to the loins and of diuretics internally.

In conclusion, the hope may be expressed that with a fuller knowledge of the physiology and pathology of the newborn infant, these two diseases, at present so fatal, may become more amenable to treatment. At the same time it is well to remember that probably the diseased process is in both affections initiated *in utero*.—*British Medical Journal*, Feb. 22, 1890, p. 404.

SYPHILITIC AFFECTIONS.

89.—ON THE METHODS OF ADMINISTERING MERCURY IN THE TREATMENT OF SYPHILIS.

By R. W. TAYLOR, M.D., Surgeon to Charity Hospital, New York.

My experience in hospital and private practice has convinced me that the system of treating syphilis by interrupted but carefully regulated courses of mercury alone at first, and of mercury and iodide of potassium later on, is the one most preferable, most satisfactory and practicable to both physician and patient, and the one by means of which we may almost positively promise a cure to any one with ordinary health who will systematically submit to and follow it up. All systems of treatment depend on the following methods of administration of mercury: Ingestion by the mouth, endermic medication by inunctions of ointments or soaps and fumigations, and by hypodermatic injections. All these methods have their advantages, and it is a pity that the proposers of some of them, particularly of the various forms of hypodermatic mercurial injections, do not recognise their limitations, but claim for them more extended use than their merits warrant. In what follows regarding the essentials of a treatment by interrupted courses, I shall attempt to show that the best results, which, of course, means cures, are obtained by a judicious use of any or all of these means as the conditions or necessities of the case demand.

The first question which confronts the physician is the choice of a remedy, and though there are numerous preparations of mercury, to-day the green iodide is the one most in favour. In addition to it, I think we can place the tannate of mercury (hydrarg. tannicoxydal) as being of particular advantage in many cases. The older authors used gray powder, blue-mass, and calomel, when they desired a prompt mercurial action, and, as they termed it, "just to touch the gums." As I will show later on, we possess methods of procedure which result more efficaciously than those agents, and which are not attended with their constant drawbacks, namely, sudden and severe ptyalism and gastro-intestinal irritation.

For all practical purposes, therefore, the protoiodide and the tannate of mercury are sufficient. In my experience the bichloride taken by the mouth is a very uncertain remedy, of scarcely any value in small doses, and capable of great harm in large ones. Its value, however, by the hypodermatic method cannot be overestimated.

It is well to begin with a pill or tablet containing one-fourth or one-fifth of a grain of the protoiodide of mercury for persons of ordinary build, but for very large and robust subjects one-third or one-half a grain may be given. This dose may be taken three times a day, and then, if the symptoms do not yield (assuming

that there is much constitutional reaction), if the lesions do not show signs of involution, and if the ganglia do not perceptibly subside, a fourth and even a fifth dose may be given within the twenty-four hours. The dose of the tannate of mercury is from one-half to one grain.

There is nothing extraordinary in the pursuance of an early active mercurial course. It is well that the first mercurial course of this treatment should be both active and rather prolonged. Therefore, we should endeavour to keep the patient under the influence of the mercurial treatment for at least three months, and, if possible, four or five, and even six, if necessary. In most cases, at the end of three months, during which the remedy should be taken quite steadily, the patient's condition will be found to be so reassuring that a stoppage of the dose may be allowed for one, two or even three weeks. In favourable cases, and by far the greater number, patients will affirm that they feel as well as they ever did, and in private practice it is rare at this time to see any but the mildest and most trifling lesions, such as spots on the tongues of smokers or drinkers, or scaly patches in those subject to simple skin affections.

The next course may last but two or two and a half months, when perhaps about four weeks of freedom from drug-taking may be granted. Then the medicine may be used again, and in the course prescribed. During the second year I am accustomed to combine iodide of potassium with the mercurial salt, using either the bichloride or the biniodide. During this second year, all things being favourable, the intervals may be lengthened, though a full dose of the combined drugs should be given when treatment is being followed. The morale of the patient is always much improved by these periods of liberty.

Mercurial inunctions are used by some surgeons, particularly abroad, as routine method of treatment, but this is not largely the case in this country. I prefer them as an adjuvant reserve and emergency resource, since by this course I think we get the best results.

The early rashes of syphilis are best treated, in my judgment, by mercurial inunctions, both during their active and chronic stages. Thus, if the erythematous syphilide is exceptionally severe and persistent, it is well to leave off internal pill dosage and use mercurial inunctions, according to the usual plan and the indications presented by the case. When the eruption has disappeared the pills are resumed again, and the ointment discontinued, unless perhaps some small patches require its continued use.

Then, again, early in the secondary stage, we can often greatly assist the cure by direct mercurial action upon the enlarged lymphatic ganglia, particularly when they are abnormally hyperplastic. It is a valuable, even a golden, rule never to be content with the action of mercurial pills, unless we see a decidedly rapid

subsidence of the lymphatic ganglia. Failing to produce this effect is evidence that our remedy is not carried in sufficient quantity by means of the circulation, and that local medication is necessary. Upon the inguinal regions we can always produce a decided effect by mercurial inunctions, and the same may be done with the ganglia of the arm in chancres of the fingers; with those of the neck when the chancres are upon the head, lips, or within the mouth. Unusually large infiltrated syphilitic ganglia, wherever situated, are signs of evil omen, and, as a very general rule, it may be said that they require an active regional treatment. In like manner, hyperplastic lymphatic vessels and hyperplastic bloodvessels must be locally and actively treated. It may be well to state that the inunctions should be made over the ganglia and upon the region supplied by their lymphatic radicles.

It is my custom in hospital practice to order the inunction treatment for all those cases of early papular syphilides, and direct that the applications shall be made directly to the parts upon which the lesions are present. Thus, taking the head and neck one day, and one or two arms the next, and the other portions of the body in anatomical succession, thus going on day after day; if there are no contrary indications, the whole rash is brought under a local mercurial treatment, and, at the same time, the general system is affected by the absorption of the drug into the circulation. When the rash has disappeared internal treatment may be employed, usually, however, after a suitable interval of freedom from medicine-taking.

In like manner later-occurring and usually more special localized eruptions of all varieties may be treated, the aim in all instances being to produce a decidedly regional mercurial effect at the same time that systemic absorption is produced. It has long been my custom to order mercurial inunction with all local precautions upon the neck and under the jaws, even upon the temple and occiput, in appropriate cases of early and late syphilitic meningeal and, cerebral disease. In the cephalalgias of the early and late periods in the neuralgias of the cranial nerves, and in syphilitic neuralgias in general, I am a firm believer in the efficacy of a well-ordered carefully applied regional treatment.—*Medical News*, Dec. 7, p. 627.

90.—ON THE HYPODERMIC METHOD IN THE TREATMENT OF SYPHILIS.

By R. W. TAYLOR, M.D., Surgeon to Charity Hospital, New York.

The hypodermatic method of treating syphilis is, within certain well-marked limitations, one of much practical value, and to it we accord a subordinate place in our armamentarium. Its advocates have failed in their hopes of its very general use, and its substitution for the older methods, because they claimed for it a wider

sphere of usefulness than its merits will really entitle it to. Then, again, the profession has been bewildered by the great variety of salts of mercury, both old and new, and those thought to be pharmaceutically improved and modified, which have been vaunted as the perfection of specific medication. Each prominent advocate has exploited his own favourite preparation as being better than all the rest, and the bulk of the profession, being in a quandary, have marvelled, and used none of them. There can be no question that by the hypodermatic method of using mercurial salts we may use a minimum dose, we may insure precision and accuracy in the amount of the drug, and that we may obtain rapidity and perhaps rather greater potentiality of effect, with much less liability to mouth and intestinal drawbacks, in a simple and convenient manner. But weighing against these advantages we have counterbalancing facts in the widespread repugnance of patients to the treatment, the pain and soreness, the formation of indurated nodules and plaques, the occasional occurrence (even with the greatest care) of abscesses, and when the insoluble salts are used, the danger of embolism. Still, as I have said, the method is useful at certain times, when used with intelligent and careful technique.

My experience has taught me that the soluble salts of mercury are the ones to be employed as being more manageable, equally effective, and that, except in very rare instances where calomel may be used, injections of insoluble salts of mercury should not be employed. In my judgment, a pure watery solution of the bichloride of mercury is the best all-around preparation for hypodermatic injection in every possible respect. Of this, two solutions may be kept on hand; the first, in which one-twelfth of a grain of the drug is dissolved in ten drops of water, and the other, containing one-eighth of a grain in the same quantity of the menstruum, both of which may be taken as standard doses. The weaker solution is the one with which to begin treatment for adults, and the stronger one can be used if the case requires a larger dose. For women and children a less quantity should be injected. It will often be found that these injections will cause the rapid subsidence of specific lymphatic swellings, when made in their vicinity and in some cases into their substance. Localized and regional eruptions can be made rapidly to retrogress and disappear by their use. This rapidity of action is often very necessary when the lesions are on such exposed parts as the face, forehead, neck, hands, and wrists. The injections may be made very close to the seat of the eruption, in very urgent cases, on the forehead, scalp, and nucha, and also upon the neck and near the hands on the flexor surfaces. If great care is taken they will give rise to no trouble, even on very delicate parts.

The cephalalgias of syphilis and the various neuroses may very

often be promptly relieved by injections made as near the seat of the trouble as possible or practicable. In many of these instances there is more or less gastric intolerance from various acute or chronic causes, and then, by means of the injections, we may push on vigorously with the specific treatment. Where the early eruptions are very extensive and copious, I prefer the mercurial inunctions, but even in these cases hypodermatic injections may be used with efficacy. In some instances, happily rare, mercury taken by the stomach acts as a general depressant, and the nutrition is much impaired. I have many times seen these grave drawbacks and seeming contraindications promptly dispelled by the use of the injections of the bichloride of mercury. In such cases it is well to begin with quite a small dose and then work upward as fast as we can.

In ocular troubles, both mild and serious in their course, these injections may be used with benefit, but owing to their gravity I am disposed to rely more commonly on mercurial inunctions. It is in these threatening cases of grave intra-ocular trouble that we sometimes see marvellous results follow the employment of regional injections of calomel. Osseous, bursal, fascial, and articular lesions of syphilis, particularly the earlier ones, are often much benefited by sublimate injections. In such cases, however, it is well to administer synchronously iodide of potassium in full and increasing doses. For this class of osseous and fibrous tissue lesions, however, we must never forget the known efficacy of mercurial inunctions. There are many other conditions in which sublimate injections may be employed as a method of utility and emergency, which will become apparent to the surgeon after he has familiarized himself with their value and approximative scope.
—*Medical News*, Dec. 7, 1889, p. 631.

91.—ON THE SUBCUTANEOUS GLANDULAR AFFECTIONS OF THE LATE STAGE OF SYPHILIS.

By SIGMUND LUSTGARTEN, M.D., New York.

[After reporting four cases occurring in his own practice, and also referring to numerous other cases recorded by various writers, Dr. Lustgarten proceeds to review the Clinical Features of the Tertiary Bubo. He remarks:]

Of subcutaneous glands, tertiary syphilis attacks most frequently the inguinal, secondly the glands of the neck, especially the sub-maxillary and intra-clavicular; much more rarely the cervical, axillary, and the cubital glands.

Rarely a single gland is affected; in the rule one chain of glands, or the glands of one or several regions.

The diseased glands present themselves as roundish, oval, firm, elastic, at times hard, tumours of uneven nodular surface, or they

appear as masses softening in the centre and possibly fluctuating, or they may appear caseous. The two forms first named are often found associated, and observation demonstrates that the second form is evolved more or less rapidly from the first. The size of these lymphomata varies from a cherry to that of an orange, most of them being of English walnut size. The glands are in general indolent or somewhat sensitive to the touch ; sometimes, especially during the night, a dull or lancinating pain may be felt. The occurrence of excessive pain, such as is common in malignant neoplasms, is rare.

The gummous lymphomata appear in the beginning movable upon one another and upon the underlying tissue. After a longer duration firm cicatricial-like tissue is formed which fixes the glands to one another and binds them to the parts beneath, extending into the septa of the fascias, and enveloping the vessels and nerves in such a manner that operation for their removal may present very great difficulties. In some cases glands more or less distant from each other are seen to be connected by nodular lymphatic bands of the size of a quill. The skin over many of the glands is movable and remains so, while over others it is coextensive with the capsule. If then the gland softens or becomes caseous, the skin is mostly involved. It becomes infiltrated, and successively red, brownish, or livid. Then, after the capsule of the gland is perforated, the skin becomes thin and shows, at least when ruptured, a mellagenous, viscous mass which contains débris of tissue, or the mass is more puriform and of a grayish-yellow colour. More rarely the skin becomes gangrenous and is exfoliated over a diameter of several centimetres, and shows a characteristic syphilitic ulceration of the gland, or one which has become caseous. In other cases the process extends after the perforation to the skin, and causes an extensive serpiginous, ulcerating syphilide. The latter course forms an interesting analogy with lupus vulgaris, developing at times in the skin over scrofulous glands, especially at the point of perforation of the skin.

The tertiary lymphadenitis presents itself (1) concomitant with, or subsequent to, other syphilitic lesions. At the same time visceral affections may be present. (2) In a predisposed individual, subsequent to surgical or other traumas ; or in glands which a previous disease has rendered a *pars minoris resistentiæ*. (3) As single manifestation of the disease. The affection develops and runs its course in general in a chronic manner. The lymphomata may persist during many months, and even more than two years, as hard tumours, though more frequently, after several months duration, single tumours become softened. As is generally the case in tertiary syphilis, the power of spontaneous cure is very slight or totally wanting. In the beginning of the affection leucocythosis has been observed. If the disease is of longer

standing and many glands are implicated, the symptoms of a more or less marked oligæmia (chloranæmia) may make their appearance and lead to cachexia. The age of the affected individuals varies from eleven to fifty-three years, being most frequently found in the third and fourth decennium. A suitable antisyphilitic treatment brought about a cure in all the cases.

A glance at what has preceded will show that the affection with which we are occupied presents a great similarity in a number of clinical aspects with several other processes. Here also the Proteus-like nature of syphilis is manifest in its imitation of other morbid conditions. On the whole, it must be said that tertiary lymphomata will often be properly recognized if, after all, we bear more constantly in mind the possibility of their existence. In which case it may also happen that one will see shades of difference which have an important bearing on diagnosis, and which may be more readily perceived than described, or made understandable to others. In all dubious cases, the old rule of experience holds good: *In dubiis suspice luem*.

To touch only upon the question of differential diagnosis—for in the present state of our knowledge it is not possible to exhaust it—it is observed that glandular gumma, when a single gland is affected, may be confounded with primary carcinoma or sarcoma (in a restricted sense) of the glands, enchondroma, scrofulosis, actinomycosis.

Sarcoma, in general, will be differentiated among other things by its rapid growth, enchondroma by its very slow development and great firmness, whereas the great rarity of primary glandular carcinoma, in dubious cases, will lead to the supposition of gumma. In scrofulosis, that is to say, tuberculosis, there is, besides the differences of course, complications, colour, &c., the theoretical difference shown by bacteriological examination. I use the term "theoretical" because in practice the demonstration of bacilli in glandular pus often does not succeed, and experiments on animals are not always easily carried out; and for the further reason, that unless the latter are made with all the precautions of modern bacteriological technique, they will more than ever give rise to misleading diagnosis. On the other hand, actinomycosis will readily be excluded by demonstration of its characteristic micro-organisms.

If many glands are attacked, there come into consideration the primary simple hypertrophies, an affection not elucidated, which is especially described by older French authors as frequently occurring in the army; the scrofulous, that is to say, tuberculous glands; the leucæmic tumours, which, in addition to the examination of the blood, are further characterized by their extension in a flat manner and by softness; and the malignant lymphomata (pseudo-leucæmia, Hodgkin's disease). Although in respect to the

latter the gummous lymphomata are characterized in general by greater inclination to softening and ulceration, and by a more slow and benign course.

If the glandular gummata are secondary to, or followed by, other symptoms of syphilis, there will be no difficulties encountered in forming a just estimate of the process.

In all dubious cases the diagnosis must be determined *e. juvenibus*, and this so much the quicker as the possibility of degeneration (more properly called a complication) of gummata which have not been treated for a long time, into malignant tumours, must not be lost sight of. The injury which an un-called-for specific treatment may produce is without importance in comparison with the beneficial therapeutical effect secured when the contrary is the case.

The treatment should be an energetic one, in preference a mixed treatment of mercurial inunctions and potassium iodidi, together with the administration, during several weeks, of Zittmann's decoction. After the disappearance of the symptoms excitation of assimilation and excretions by warm baths, Russian baths, massage, &c., and alternating weekly the internal use of iodate of potassium and mercury; besides dietetic measures, tonics, &c., according to the indications of each individual case.

Finally, let me say a word in regard to the designation "gummous or tertiary lymphoma," which is employed in the title and again several times in the text. It is desirable that it should be adopted, on practical grounds. Pathological anatomy, it is true, defines lymphoma as a new-growth having the character of lymphatic tissue. On the other hand, the designation "lymphoma," with the appropriate epitheton added, has been applied to purely hyperplastic or to chronic inflammatory processes, which in a clinical sense have the appearance of new-growths (leucæmic malignant lymphoma). It is in analogy with the latter to add tertiary syphilitic affections of the glands to lymphomata, and it is to be hoped that in consequence—by connecting the latter name with the suffix of lues—one will be aided in the proper recognition of the affection which I have described.—*New York Medical Record*, Jan. 11, 1890, p. 31.

92.—ON THE TREATMENT OF GONORRHOEA BY SALOL.

By J. ERNEST LANE, M.D., Surgeon to Out-patients, at the London Lock Hospital.

I have for some time past been prescribing salol in the out-patient department of the London Lock Hospital, and am now enabled to give the results of its administration in fifty cases of gonorrhœa. I have tested the value of the drug in urethral discharges at all stages, in some cases relying solely upon its use, in

others employing an astringent injection in addition. An analysis of the fifty cases shows that six were cured, twenty-four showed considerable improvement, in fifteen cases no change either for better or worse was noticed, while in five cases the symptoms were aggravated. The doses used were from five up to thirty grains, taken three times daily. The beneficial effects of salol manifest themselves in a very short time. When improvement takes place the symptoms show an abatement in from two to seven days; in acute cases the painful micturition is early alleviated; in cases of a more chronic nature the discharge is materially lessened in this time. In ten cases an injection was employed in conjunction with salol; this was when I commenced my trial of the drug, and which I gave at first in five-grain doses. I subsequently increased the dose to ten, twenty, and in a few cases to thirty grains, and relied upon its internal administration without the assistance of injections; out of forty cases so treated, an improvement was noticed in twenty within a week, while six were completely cured.

Salol is not a mechanical mixture of carbolic and salicylic acids, but appears to be a compound of the nature of an ethereal salt, since phenol can, with some slight difficulty, be obtained from it on saponification. The potassium salt left after the treatment of salol with caustic potash gives with hydrochloric acid an acid which is either salicylic or one of its isomers. Four hours after administration by the mouth of twenty grains of salol traces of carbolic and distinct evidence of salicylic acids, combined with other elements, were found in the urine. In one case the urine was blackened as in carboloria, the patient at that time taking thirty grains three times a day. It is by the action of the pancreatic juice that salol is said to be split up into carbolic and salicylic acids; of this change I was unable to procure any sufficient evidence after having added pancreatine to a mixture of salol. In salol we have, in my opinion, an addition of considerable value to our list of remedies for gonorrhœa; its effect is apparently produced by the action of the urine upon the inflamed urethra, since that fluid contains salicylate and carbolic acids in combination, probably as salicylurates and sulphocarbulates. It may be given in doses of from ten to twenty grains three times daily at any stage of the disease, and in chronic cases an astringent injection will materially hasten the cure. The effect of the drug does not appear to be enhanced by larger doses than twenty grains; when the amount was increased to thirty grains, the urine became blackened and the symptoms did not show any proportionate improvement. I commenced by giving five-grain doses, but this was soon discovered to be too small a quantity, and my results would, I doubt not, have been more favourable had I commenced its administration with a freer hand.—*Lancet*, March 22, 1890, p. 644.

AFFECTIONS OF THE EYE AND EAR.

93.—ON TRANSPLANTATION OF RABBIT'S CONJUNCTIVA TO THE HUMAN EYE.

By J. R. WOLFE, M.D., F.R.C.S.E., Professor of Ophthalmology in St. Mungo's College, Glasgow.

[After reference to some cases in which this method had been adopted, and to other operative procedures that have from time to time been adopted for the cure of Symblepharon, Professor Wolfe goes on to describe his method as follows.]

At the meeting of the British Medical Association in Glasgow in 1888, I had another opportunity of performing an operation in one case, and of showing another operated on five days previously, to enable those who were present to judge of the hopeless condition of an extensive symblepharon before and the results obtained after transplantation from the rabbit. This was the more necessary as, since first recommending it to the profession, I have considerably modified the procedure and rendered it more simple.

The operation is now performed in the following manner:—1. I first separate the adhesions by means of blunt-pointed scissors, so that the eyeball can move in every direction. The conjunctival sac and cornea are cleared of nodules, so as to obtain an even surface. 2. Two rabbits are then put under chloroform, one being kept in reserve in case of accident. 3. I take from the rabbit that portion of the conjunctiva, which lines the inner angle covering the “membrana nictitans,” and extending as far as the cornea, on account of its vascularity and looseness. If the palpebral opening is too narrow, I enlarge it at the external angle, and introduce a ligature through the whole thickness of the free border of the lower lid, and by means of this ligature the lid is drawn open and kept steady, and the conjunctival cul-de-sac exposed. 4. Into the middle of the flap to be removed a black silk ligature is introduced, a knot is tied, and the ligature cut short. This knot is intended to mark the epithelial surface of the membrane, for without it the flap is apt to curl up, and leave us at a loss how to adjust it. 5. Next, I mark the boundary of the conjunctiva of the rabbit which I wish to transplant by inserting four black silk sutures, which I secure with a knot. The ligatures having been put on the stretch, I separate the conjunctiva to be removed with scissors, and, by means of a fine spatula, I spread it upon the back of my left hand. The four ligatures are then cut off, and the conjunctiva trimmed to the requisite size. It should be larger than the lost substance. 6. I now return to the patient, and see that the bleeding has subsided, and that the parts are in a fit condition to receive the transplanted flap, which has in the meantime become dry like a piece of parchment, and adherent to the dorsum

of the hand. 7. It is then lifted by means of a spatula, and transferred to replace the lost conjunctiva of the patient. It is secured in its place by six or eight ligatures, or even more if necessary. This is a very difficult process, requiring delicate manipulation, and the assistant must keep the flap in its place by a spatula while it is being stitched in its new place. Both eyelids are closed with lint and a bandage, and kept so for four days. The ligatures are left in for six or eight days.

With regard to the patient, it must be borne in mind that it is a tedious operation, so that it is impracticable to administer chloroform. To young subjects I administer it only during the first stage—i.e., during the separation of the eyelid; for the remainder of the time moral suasion must be resorted to. In cases of grown-up people I generally perform the operation without anæsthetics.

The following case is very interesting, as it marks the transition from the old to the new method of procedure—symblepharon and anchyloblepharon (total) cured by transplantation from the rabbit (July, 1883).

Jeremiah J——, steelworker, aged twenty-two, got his left eye burned by a flash of slag from the forge hammer nine years ago. He was under treatment at Workington for four months, after which he was sent to the Manchester Eye Infirmary. Here (he states) attempts were made to keep the eyelids apart by means of strings and lead and a ring round his nose. When he came to the Glasgow Ophthalmic Institution, on March 17th, 1883, the eyelids were completely closed, the free borders of the lids were obliterated, so that the dissection of the upper and lower lids from the globe was effected with great difficulty. “Buried under the lids” is an exact description of the state of the eye in this case. When the lids had been dissected, we found that only the upper and outer quadrant of the cornea was transparent; the rest was quite opaque. By means of ligatures inserted into them the lids were kept separate, and an artificial pupil was formed in front of the transparent cornea. The symblepharon was subsequently remedied by transplanting conjunctiva from the rabbit. The conjunctival sac is now free through its whole extent. The eye is movable in every direction; vision is restored. This method of conjunctival transplantation has been practised successfully by Professor Otto Becker (Heidelberg), Professor Albrecht Graefe (Halle), Professor de Wecker (Paris), and Marc Defour (Lausanne). Among American surgeons, Dr. Noyes (whose cases amounted to about a dozen) first applied this operation to the formation of the conjunctival sac for the purpose of fitting in an artificial eye, when the natural cavity had become contracted; but Professor Cohn of Breslau had previously performed the operation for the same purpose. There is one question, and that a most essential one—namely, as to the durability of the operation. It is satisfactory to

make a conjunctival sac, but how long will it last? Do the surfaces by constant friction tend to adhere? We frequently have an opportunity of examining patients long after the operation, and have always found them satisfactory.—*Lancet*, Dec. 14, p. 1220.

94.—ON ORBITAL TUMOUR FROM MUCOUS DISTENSION OF THE FRONTAL SINUS.

By RICHARD WILLIAMS, M.R.C.S., Surgeon to the Liverpool Eye and Ear Infirmary.

[Mr. Williams relates the narratives of Three Cases of Orbital Tumour, in illustration of his remarks on the subject. The main facts of the cases are as follows:—]

Case 1.—Miss W., aged 16. Swelling of two years' duration at left side of root of nose. No fluctuation could be felt, but on pressure the bone seemed to move slightly. It was thought to be an exostosis. Exploratory incision revealed a collection of mucopurulent gelatinous fluid. A drainage-tube was used for 14 days, and the sinus ultimately healed.

Case 2.—Mrs. B., aged 47. A swelling at the upper and inner angle of the left orbit of four months' duration. Sarcoma was suspected. The swelling emptied spontaneously into nasal cavity. A semi-lunar incision was made over the tumour. About an ounce of muco-pus escaped from the cavity, which was then explored with the finger and found to be the distended frontal cells. By means of a Volkmann's spoon the partition between the cavity and the nostril was broken through, and a curved probe carrying a drainage-tube was introduced into the cavity and brought out through the nostril. The sinus was still discharging pus nine months later, but was then obviously about to close.

Case 3.—Janet R., aged 13. Swelling at the inner angle of the left eye of 12 months' duration; firm, rounded, and elastic, presenting externally over the situation of the left lacrymal bone, and extending backwards along the inner wall of the orbit as far as can be felt. In four months the swelling had disappeared, but it returned again at the end of two years. An incision was made as in Case 2 and a drainage-tube kept *in situ* for six weeks. The incision healed in due course.

Although several cases of distension of the frontal sinus have from time to time been reported, the disease must be comparatively rare; for some text-books on general, as well as ophthalmic, surgery are silent on the subject, while in others the authors do not apparently speak from personal experience. This rarity, no doubt, accounts, to some extent at least, for the somewhat indefinite notions which still seem to prevail with regard to the nature of this affection. It is variously spoken of as a "cyst," "hydatids," "chronic abscess," "encysted tumour," &c., each

writer having his own, and apparently a different, idea of its pathology. In recent years examples have been published by Hulke, Higgens, and Lawson; and the last-named author has given an excellent description of its causes, symptoms, and treatment in his work on the "Diseases and Injuries of the Eye." In spite, however, of the best description, the diagnosis in the early stage is a matter of extreme difficulty. In this stage the swelling presents a variety of characters, differing essentially from each other in different cases, and suggesting the existence of exostosis, sarcoma, or other growth within the orbit; and it is only on the advent of fluctuation that we can feel any degree of certainty as to the nature of the affection we have to deal with. This want of uniformity in the symptoms is well shown in the following three cases, which have all come under my care within a period of a few months.

The causation of this affection has in some cases been traced to an injury sustained at a date much anterior to the first appearance of the symptoms; but it seems to me somewhat far-fetched to go back forty or fifty years for the cause of an affection of this description. In my cases no history of traumatism of any kind could be ascertained, and it does not seem difficult to account for the occurrence of distension of the frontal sinus in the case of any person subject to "colds in the head." The infundibulum—the narrow channel which serves as the means of exit for the contents of the sinus—may very easily, under the influence of catarrh, become blocked up by the swelling of its walls. If this swelling should continue for a certain time, the contents of the sinus may become so thickened as to be incapable of escaping through such a sinuous and contracted passage, and thus the accumulation may go on indefinitely, pushing before it the walls of the cavity in all directions. That portion of the walls which separates the sinus from the orbit, being the thinnest and most yielding, gradually gives way before the constantly increasing contents, and a tumour is then observed at the inner and upper angle of the orbit, the attention of the patient being thus for the first time drawn to his condition. The Fig. is from a photograph of Janet R. before operation.

As already mentioned, and as will be seen from the cases, this tumour may be mistaken for an exostosis, a sarcoma, or a chronic abscess of the orbit, according to the stage at which it comes under observation. It may also be mistaken by the inexperienced for a distended lacrymal sac; but, as Mr. Higgens truly says, "there are certain marked differences between the two. Thus, the position of the swelling in distension of the frontal sinus is different; it is high up at the inner angle of the orbit instead of beneath it; it cannot, like the distended sac, be emptied on pressure, nor can any of its contents be squeezed out through the canaliculi." One of my cases (No. 2) shows that Mr. Higgens is not quite accurate

as regards emptying the sac on pressure, for I found accidentally that the tumour could be made to disappear almost entirely by pressure with the fingers; but it is quite true the contents did not find exit through the canaliculi, for the matter could be seen to trickle down the throat, or to escape by the anterior nares, according as the head was held forwards or backwards while the pressure was being made. This fact might be utilised on future occasions in cases like the one referred to, in which the passage from the cells to the nostrils is not quite impervious, but in which the contents are so thick that they cannot escape by their own weight. Once the matter was discovered to flow into the throat by pressure on the tumour, there could no longer be much doubt as to the nature of the latter. At a later stage, when the bone has become absorbed and the skin begins to be stretched, suppuration is apt to take place, and the tumour may then be mistaken for an abscess. Suppuration took place in Case 3, but it was apparently subcutaneous, and did not involve the contents of the frontal cells; for when the abscess was opened, and the matter had escaped, the skin healed over again without any apparent diminution in the size of the swelling. My own experience agrees with that of others that in many of these cases an exploratory incision is the only certain means of diagnosis.



As regards treatment, the most rational plan which seems to suggest itself, in addition to the emptying of the cells, is the re-establishment of the communication between the sinus and the nostril. I think that in the majority of cases where the operator has been content with cutting simply into the tumour and evacuating its contents, without making the above-mentioned communication, a sinus has remained at the seat of the incision either permanently or for a long time. This must be very objectionable to the patient, and it is very desirable to bring about a firm scar if possible. That this may happen occasionally without establishing a communication with the nostril is proved by Case 1, which I saw last in July, 1889, seven months after the operation, when the cicatrix was quite strong, and there appeared to be little abnormality beyond a slight fulness on that side of the orbit. It is

evident, however, that if a free passage into the nostril can be established the chances of rapid and firm healing are greatly enhanced. It has been suggested that the natural channel should be dilated through the nostril, but I imagine it must be extremely rarely that such a feat can be accomplished. Most operators have adopted the plan of making an artificial opening between the two cavities and of introducing a drainage-tube to keep it patent. For this purpose I found a Volkmann's spoon very useful, and there was much less difficulty than I had anticipated in penetrating the thin layer of bone and membrane which separates the two cavities. The partition has become so thin by continuous pressure, that a large opening is easily made, and I do not think it is necessary to retain the drainage-tube for such a long period as four or five months as recommended by Mr. Lawson.—*Lancet*, March 1, 1890.

95.—A CLINICAL LECTURE ON MASSAGE SCOOPS AND IRRIGATION IN THE EXTRACTION OF CATARACT.

By W. A. McKEOWN, M.D., Surgeon to the Ulster Eye, Ear, and Throat Hospital, Belfast.

We shall consider to-day the most delicate and critical stage of the operation of extraction—viz., the removal of residual cortex. I may add also that it is the most uncertain, notwithstanding the accumulated experience of nearly two hundred years; for though a competent operator with a steady patient can make the section with absolute precision in every case, the most experienced cannot in many cases say whether he can or cannot remove the cortex by the ordinary methods of massage and scoop. It may surprise you when I say that these methods, which have been so long in use, are in a broad sense unsuited for the object in view, and therefore unscientific. You have had no opportunity of seeing in this hospital the use of the scoop at all, and massage has only been used in a very mild way, being only regarded and used by me occasionally as an auxiliary to irrigation. I shall try, however, to prove to you what massage is capable of doing and what it is not. To this end you must look at the physical character of the structures, and consider the conditions involved in the problem of extraction—a matter I fear, which has not had sufficient attention.

You have now before you a rough drawing of the eye with pressure on the cornea exercised after expulsion of the nucleus. (Fig. 1.) This figure will explain to you better than I can do by words the inherent difficulty of removing cortex in any degree resistant. The soft, jelly-like vitreous (D) is the point, or rather cushion, of resistance; the force is applied at E, and causes a depression of the remains of the lens (A) and of the vitreous at F, with a corresponding bulging of the vitreous at C, opposite the wound. It is obvious that, whether the remains of the lens

(A) will be expelled or, on the contrary, the bulging vitreous at c, depends on the relative resistance of the remains of the lens (A) and the hyaloid membrane at c. If the cortex (A) be soft or, if not soft, be separated from the capsule, it may be rubbed and pressed out; but if neither of these conditions exist, the

FIG. 1.

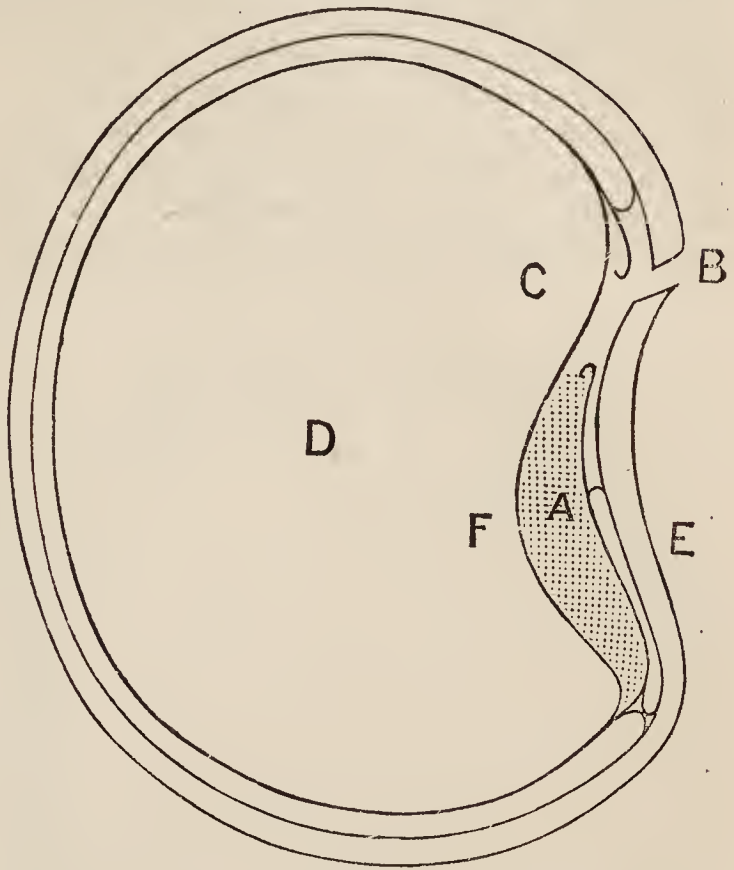
A represents cortex imprisoned in capsule after expulsion of the nucleus.

B, Corneal section gaping on pressure exercised at E.

C, Hyaloid membrane bulging towards wound.

D, Vitreous.

E, Cornea depressed by finger or scoop.



chances are that, notwithstanding all efforts, it will in great part remain in the eye a source of probable mischief. As you have never seen me perform an operation trusting to pressure and massage, you can have no adequate idea of the trouble and prolonged manœuvres often necessary and often fruitless. Whilst Fig. 1. is before you I show you now a sketch of the conditions in irrigation after expulsion of the nucleus, with the nozzle of the syphon irrigating bottle inside the capsule. (Fig. 2.) There is no pressure on the cornea, no pushing back of the vitreous, no squeezing of the hyaloid membrane towards the section. The current of water, under the control of the surgeon, flows inside the capsule to the periphery, and returns along the anterior and posterior capsule, searching every corner and bringing with it fragments of cortex from every part of the capsule. The force is equable and gentle, and acts not only on the parts we do see but on those concealed by the iris, and quite as well on the parts concealed as on the parts visible. In both cases an iridectomy is supposed to have been performed. With

these two figures before you it must be clear that the complete extraction of cataract is simply a question of physics, of relative resistance and relative well-directed and suitable force; and, if I may prophesy, the method which will prevail is that which most accords with physical laws and conditions.

I now come, a little out of order, perhaps, to the use of scoops. The history of scoops is one of which the ophthalmic department of the profession has no reason to be proud. It illustrates very well indeed the tendency of the mind to get into a groove, to adopt views and practice without adequate inquiry and stick to them for generations, though warned of their general unsoundness by daily

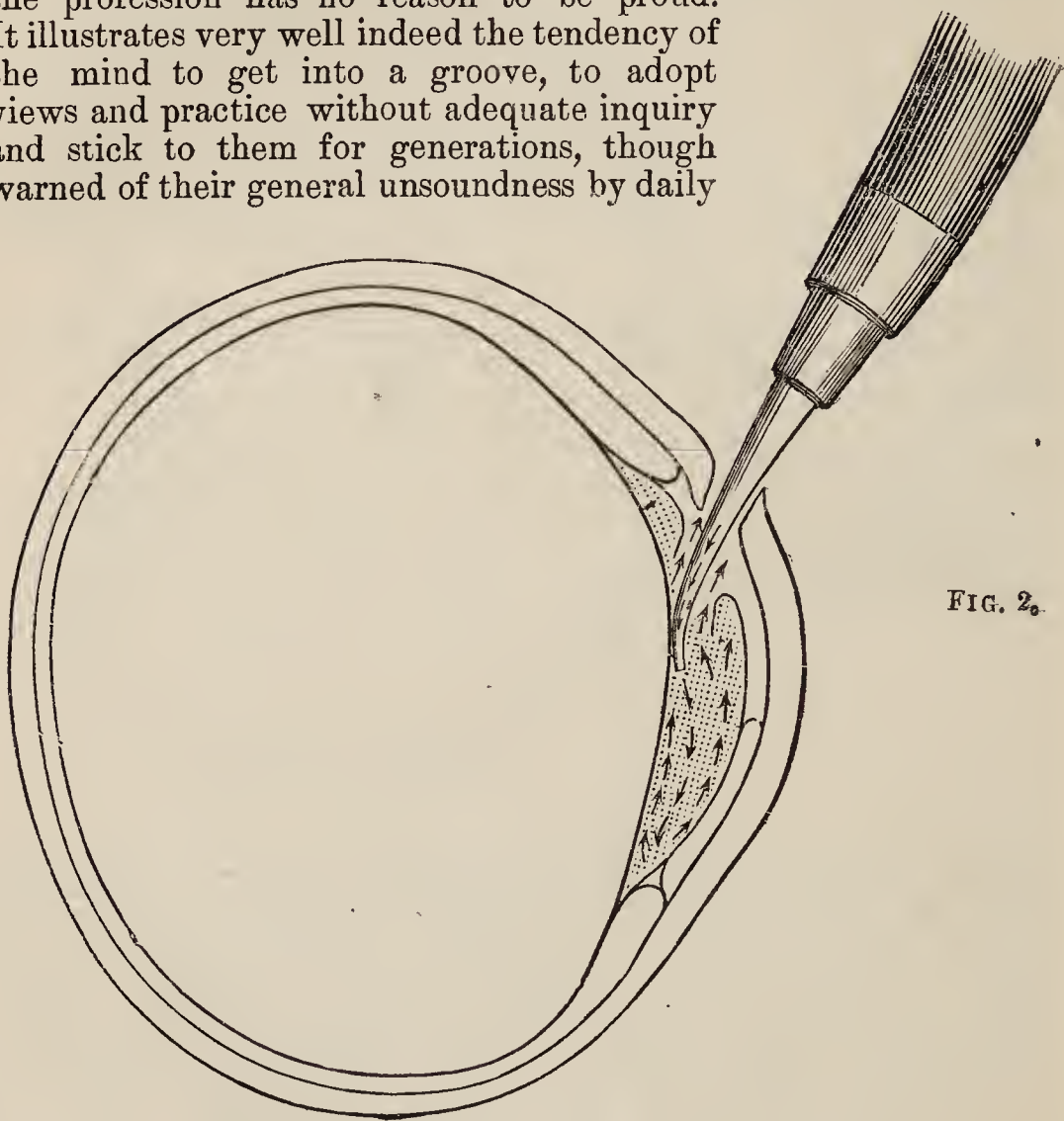


FIG. 2.

experience. St. Yves was the first to use a scoop. He removed by it a dislocated lens through a corneal section. For this sort of operation it was a proper instrument, and at this day for a like case it holds its ground. But when Daviel applied corneal section to remove cataracts, not dislocated but remaining *in situ*, he, probably following St. Yves in a way, used a scoop to remove, not the body of the lens, as St. Yves did, but fragments of the lens in the pupil after extraction of the nucleus. I cannot help thinking that, useful though the scoop of St. Yves was, and useful

though the curette of Daviel may have been in isolated cases, this use of the scoop has dominated the surgery of cataract not to its advantage. Surgeons have not used enough the critical faculty, but have been too much led by a regard for names and authority. Indeed, from the time of St. Yves till quite recently ophthalmic surgeons have had fitful periods of a mania for scoop invention. They have followed St. Yves and Daviel, and, I think, without any satisfactory reason. I will now examine in a few words, as I did in the case of massage and friction, what the scoop can and cannot do as regards removal of cortex. I will begin with the old classical flap extraction, for a time recently under a cloud, but now happily revived. You know iridectomy was not performed, therefore, after expulsion of the nucleus, the only part of the lens area under view was that of the natural pupil—that is, about one-eighth or one-tenth of the anterior surface of the lens; and as the scoop could only be used to remove fragments seen by the surgeon, it could have any possible application on only the one-eighth or one-tenth of the field. I must speak quite plainly about this; and I say the use of the scoop was inapplicable for about nine-tenths of the field of operation, and even uncertain for the remaining tenth, and therefore was radically bad. But some may think that the combined operation of iridectomy with extraction remedied this to some extent. This is quite true, but, on the most favourable view, just about in proportion to the enlargement of the pupil. If iridectomy enlarged the pupil so as to expose one-fourth of the area of the lens, then the scoop might be used on one-fourth of the field, but on the other three-fourths it could not be used at all. All scoops, therefore, no matter by what distinguished names they may be called, must be condemned as inefficient on the ground I have stated.

In view of what I have told you of the physical defects of the methods of pressure, massage, and scoops, you will not be surprised to learn that the bounds of legitimate operations for cataract have been comparatively limited. For the cataract should be of such a character that it could be removed by the methods of massage and scoop—that is, it should either be so firm from centre to capsule as to come out completely at once, or so soft all through, or on the surface, that all the lens could be removed. In fact, conditions were required which left little or nothing for massage or scoop to do. The surgeon judges by appearances, and if he determine that a cataract is ripe, he operates, and the accuracy of his diagnosis can be determined by the operation. So we have this important information, that operators of experience know that the diagnosis of ripe cataract is in a considerable percentage erroneous, and that the operation is attended with unforeseen difficulties. The consequences of such a mistake are very serious for the patient, and the surgeon with only massage and scoop is simply

powerless. On the other hand, when the surgeon diagnoses a cataract as unripe, he rarely operates, and in cases of such a character there is therefore no means of knowing whether his diagnosis of unripeness is right or wrong. To sum up: when a diagnosis of ripe cataract is made, there is a varying percentage of error as regards the ease of perfect removal and a consequent risk to the patient; and when a diagnosis of unripeness is made, the patient is not subjected to the risks of an operation, but is put aside for months, and often for many years, with the prospect of a miserable life, and perhaps dependence on friends or on the doles of parochial charity.

I think you have seen so much here that you know these difficulties are all faced. With intraocular irrigation as practised here, I do not fear unexpected difficulties in the ordinary cases, and do not hesitate to operate on cases of transparent and sticky cortex—in other words, of unripe cataract. And why? Because I have a well-tried method, at least well tried in this hospital since 1884, and one which makes the surgeon, in a general sense, the master of circumstances. I need not tell you, though I am sure it would be interesting, of the various stages of development of the method of irrigation and injection. I have devised and used various instruments of various degrees of efficiency and of varying defects, but this I have always had before me, that the force of pure water was the proper force to clear out the residue of the lens, and I have never seen any reason to change my opinion.

I show you now the instruments I have used since the spring of 1884, but I ask your special attention to the last one—the syphon irrigating bottle (Fig. 3). It is flat and holds about four ounces. In the inside of the bottle there is a bent tube, the bend reaching nearly to the top, whilst one end reaches to the bottom of the bottle, and the other end passes through the screwed-on cap at the lower end of the bottle. To the lower end of the tube is attached an indiarubber tube on which are a clamp to stop the flow of liquid and a ring with a screw to press the sides of the tube together and diminish the initial force of the flow. I do not know that the latter is of much use, but as it is figured in the diagram I allow it to remain. You see I have a horizontal bar moving up and down on an upright attached to the operating table, and I intended to have the syphon bottle suspended on the upright bar, but I have found it is better to have the syphon bottle held in the hand of an assistant at a suitable elevation. You see also a hole in the top of the bottle for a thermometer, but I have discarded the thermometer. I simply after charging the bottle with water of a temperature a little above blood heat, before I begin irrigating the eye, let the water flow on the back of my hand till it feels comfortably warm; then grasp the indiarubber tube between the forefinger and thumb just above the nozzle, and thus stop the flow, and introduce the nozzle into the eye or depress the lip of

the wound and, relaxing my grasp, let the water flow, and stop the flow when I think it necessary, observe the effect, perhaps use slight massage, and renew the irrigation, being guided as to continuance and repetition by the appearance of the pupil.

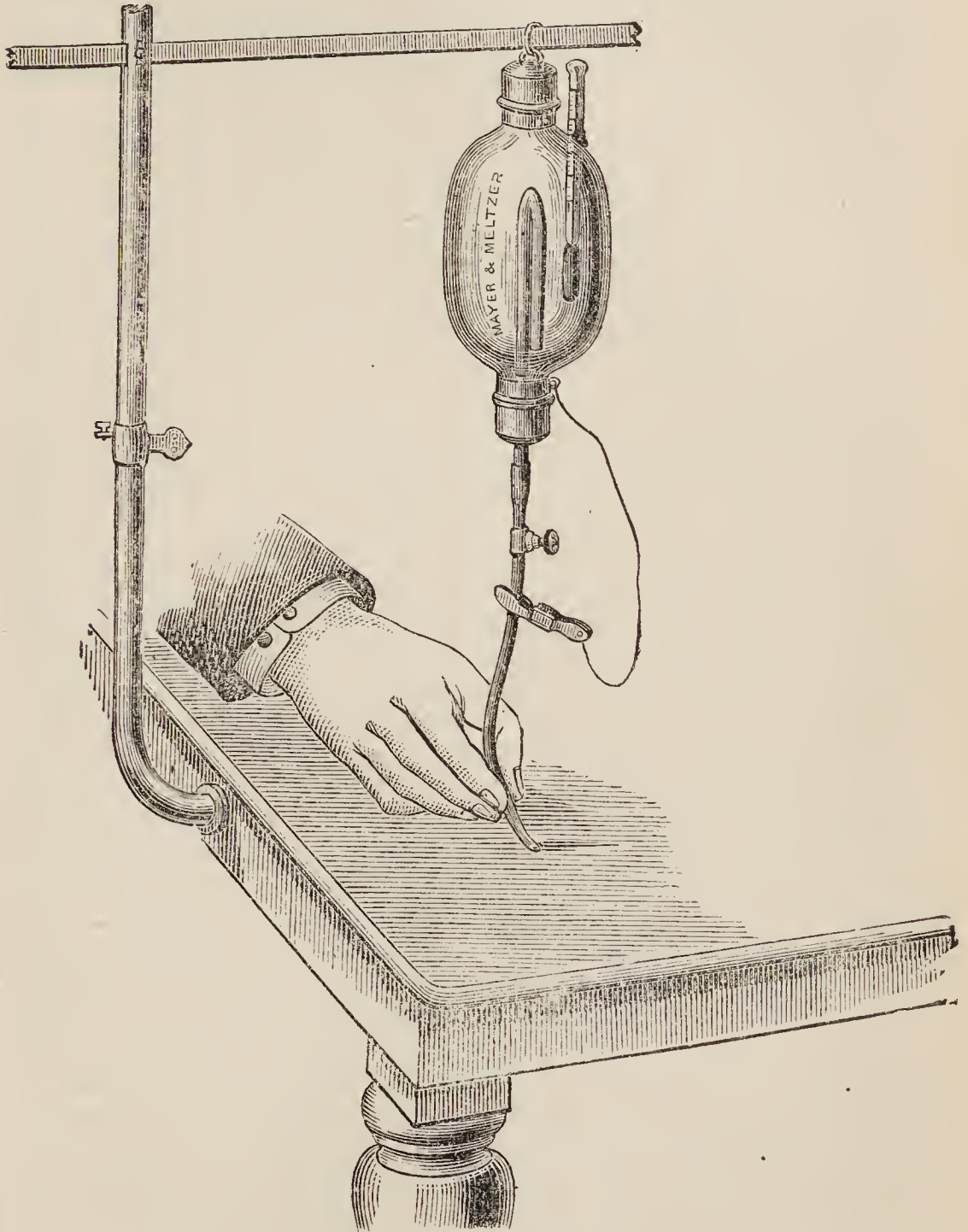


FIG. 3.—Syphon irrigating bottle.

I wish you to note specially that until the bottle is filled above the bend of the tube the water will not begin to flow ; but once it has commenced it will go on until the bottle is emptied unless

stopped by pressure, and no matter how often the clamp is applied the water will at once begin to flow again on its renewal.*

You may have observed the care which is taken to have everything aseptic. A solution of perchloride of mercury (1 in 2,000) is passed through the syphon bottle, then the bottle is rinsed with distilled water previously boiled, then the bottle is charged with distilled water likewise previously boiled and above blood heat, and the water allowed to flow through the tube before use. The tube in the bottle being of silver and the nozzle being likewise of silver, they are tarnished by the mercurial solution. I do not think that of importance in relation to the tube in the bottle; but I have the nozzle passed through the flame of a spirit lamp, rubbed, and washed by the flow of water before introducing it into the eye. The aseptic precautions described to you may seem unduly troublesome; but I cannot impress on you too much that cleanliness and attention to minute details are of the very essence of surgical success.

And now I wish to contrast my practice with that of other ophthalmic surgeons in dealing with patients. To a patient with a striated cataract, or a cataract with facets of transparent cortex, an ophthalmic surgeon with old notions usually says, "Your cataract is not ripe; it will be in a month or two, come back then." In such a case I say, "I will operate on you now." To a patient with a very slowly progressing cataract going on a number of years, but leaving him sufficient vision to go about, and read large type, and even very small type close to the eye, the ophthalmic surgeon with old ideas says, "Your cataract is unripe, and may be so for years; come back in some time, and if the disease have advanced sufficiently I will operate." I say in a like case, "If you have means to live and a contented mind, you may go about without an operation; but if you have not, I advise an immediate operation."

In 1888, I operated on twenty-six ripe cataracts, and in eighteen of these I did not perform iridectomy; on fourteen cases of unripe cataract (striated cortex, and cortex with transparent facet), and in ten of these iridectomy was not performed; in six very unripe cases of cataract (embracing two posterior polar, one in which $V = \frac{1}{6}$, and three could count fingers at four feet) iridectomy was performed. Injection inside the capsule by fine needle was performed fifteen times—viz., ten times in cases of unripe cataract, and three times in very unripe. I have spoken before about one escape of vitreous and one threatened escape. I had only two secondary operations. I had two prolapses of the iris, one by accident and one without known cause, but both ended well; and

* In my desire to make a convenient syphon arrangement without the ordinary disadvantages of the syphon, I overlooked the law of hydrostatics that the pressure of the water would just be the same without the syphon-tube, for the pressure depends only on the depth and density of the liquid, and not on its quantity. The syphon-tube may therefore be dispensed with.

now I come to the cases in which vision has not been restored. In one case in which there was some loss of vitreous in one eye the wound did not close for about six weeks. There was a negative result. In the other eye of the same patient the wound likewise did not close for upwards of six weeks. She could count fingers at twelve feet when I saw her last, but from what her medical attendant has told me since I fear that vision has diminished. The case I have just referred to was one of great want of reparative power. I saw a like case, but a worse one, some ten years ago. The cornea of one eye absolutely would not heal. After several weeks a sort of molecular loss of substance began at the wound, and went on till the cornea was destroyed, leaving a bulging vitreous. I fed him well for perhaps a couple of months, and operated on the other eye; but in this instance there was not slow molecular death, but a quick suppurative ophthalmia. The next case of loss is one of posterior polar cataract. I had performed preliminary iridectomy, and had used Förster's method without apparent effect on the opacity. I afterwards extracted, and everything went well for a fortnight, when an irritation began at the wound, the capsule became thickened, the iris adherent, and the vision diminished quite out of proportion to the external appearances. I found there was loss of retinal sensibility in the lower part. I had operated previously on her brother for a similar cataract with success, but I had previously needled it. Another case of misfortune is No. 41 in my report for 1888. It was a case of cataract of brownish centre, with peculiar yellowish-white striated ring peripherally, whilst the surface of the lens in the pupil was partly transparent. She could count fingers. I thought from previous experience that I might remove this lens without iridectomy, and I did so; the pupil closed by thickened capsule, but she could see bulk. I think if iridectomy had been performed the result would have been different. She may yet be improved. The loss of the eye in No. 28 in the report is one which no skill could prevent. The operation was completed, when suddenly the eye became tense, then iris and vitreous came into the wound, and the patient complained of severe pain. The eye was lost from intra-ocular hemorrhage.

I have detailed my failures, and the circumstances. We must always look to advances, and the surest way of making them is to look fairly at the unfavourable cases and not hide or gloss over them; but, on the contrary, give them prominence, and try to face such cases more successfully on a future occasion. As to my successes, three have vision $\frac{2}{3}$ of normal; twelve, $\frac{1}{2}$; ten, $\frac{1}{3}$; three, $\frac{1}{4}$; ten, "excellent," and "very good"; one counts fingers at 12 feet; one, $\frac{1}{8}$; two congenitally blind till thirteen years of age are learning to see.

Now, gentlemen, I have little more to say, but I must give you a

caution. You are not to suppose that irrigation and injection are very simple matters, and that anybody can do them straight off as a mere routine affair. Numerous failures of surgeons are doubtless to be charged to this cause. If the corneal section be made above, the surgeon must be prepared for the eye rolling upwards occasionally, and, if this take place, he must be expert in removing the nozzle. Although my losses of vitreous are very small, it is to me very evident that a surgeon who has had no experience may be alarmed by the sudden rolling upwards of the eye.—*Lancet*, Oct. 19, and Nov. 16, 1889, pp. 783, 993.

96.—NOTES ON THE USE OF PAPAÏN IN EAR DISEASES.

By R. MCKENZIE JOHNSTON, M.D., F.R.C.S., Surgeon to the Ear and Throat Dispensary, Edinburgh.

Papaïn is obtained from the juice of the fruit of *Carica papaya* (Papayacæ) by precipitation with alcohol, the albuminous matters being removed by acetate of lead. It is a whitish, amorphous, somewhat granular powder, tasteless, but with a faint odour. It is soluble in water and glycerine, but, as a rule, with a slight sediment. Papaïn is the pure ferment, while the term papayotin is generally applied to the crude commercial powder.

Papaïn has been shown to be a digestive ferment of considerable power, resembling in some degree both pepsin and pancreatin. Its chemical properties and uses have been investigated specially by Finkler of Bonn, Rossbach of Jena, Martin, and others. Rossbach has shown that papaïn will digest 200 times its weight of blood fibrin. It will act in solutions of great concentration, in alkaline, acid, or neutral media. Carbolic acid does not destroy its activity, but slightly retards it. Martin finds its action to be the same as that of trypsin, but not so rapid nor so energetic. A strong solution injected into the veins of rabbits produced cardiac paralysis, and a weaker solution seems to favour the multiplication of micrococci in the blood (Lauder Brunton), and great numbers of bacteria develop in substances acted on by this drug. It appears to have no digestive action upon living tissues, such as the mucous membrane of the stomach, &c. The existence of ptomaines, bacteria, or bacilli has been demonstrated to be sometimes present in pepsin and pancreatin, but papaïn, being of vegetable origin, is therefore free from this danger.

The use in medicine of papaïn is of comparatively recent date, and it is only within the last few years that several preparations, such as the Liq. Papaïn et Iridin Co.—a preparation of considerable value—and others, have found their way into the market. For many years the natives of the West Indies have used the fruit of the *Carica papaya* in order to make their meat tender before cooking it. Perhaps the first use in medicine to which it was

proposed to put papain was to digest off and destroy the false membrane in diphtheria. For this purpose Rossbach applied a 5 per cent. solution every five minutes for some time to the affected throat. Hertz thus treated ten cases with nine complete recoveries. Kohts and Asch also treated fifty-three cases, and the solvent action of the drug was clearly demonstrated. Fräntzel, Ewald, Jacobi, and others have tried it, and speak well of the results.

Malcolm Morris recommends it strongly to remove the thickening in chronic scaly eczema and verucca. Butlin has used it for syphilitic and other ulcerations about the tongue and mouth. Dr. A. L. Gillespie tells me that he has tried it in sloughing bed-sores, and found that the slough rapidly disappeared, leaving a healthy granulating sore. Internally, alone or in combination, it has been given in dyspepsias and to aid digestion, and Bartholow recommends it in children as a vermicide to destroy *tænia solium*. M'Bride, in a paper on Mastoid Operations, suggested the use of pancreatin or papayotin for cleansing the recesses of the middle ear. The former he has used, I believe, with good results; but the latter, so far as I know, he has not as yet tried. It occurred to me, therefore, about a year ago to experiment with this drug in diseases of the ear, and to see in what cases its use might prove of service.

In chronic suppuration of the middle ear pain is an almost certain indication that the secretion is not getting away freely, and this may be due to the smallness of the perforation, the viscosity of the pus, or to obstruction by growths or by hardened masses of dry pus, debris, or cholesterin. It is well known that if these conditions are neglected there is grave danger that the retained septic pus may lead to an extension of disease, possibly necessitating an operation for mastoid abscess, or even for cerebral abscess. It seems, therefore, evident that anything which can facilitate the cleansing of the middle ear, and that can readily dissolve hard masses of debris, &c., must of necessity decrease the risk of these serious consequences. In papain we have a drug capable, I believe, by its digestive action, of thoroughly cleansing the ear in those cases in which simple syringing is insufficient. I have tried it now in a number of cases, and apparently with most satisfactory results. Of course it is impossible to say that any one of these cases would have gone on to mastoid disease had they not been so treated, but I can say that cleansing of the ear was rapidly effected, and in one or two cases the relief of the pain was marked.

The following is the way I employ the drug:—15m of a 5 per cent. solution of papain is dropped into the ear, care being taken that it reaches the bottom of the meatus. If necessary the patient may be made to swallow while holding the nose, so as to draw the fluid into the middle ear. Mindful that bacteria develop largely

in fluids acted on by this drug, I only allow it to remain for one hour, after which the ear is syringed out with boracic lotion and carefully dried. This may be repeated as often as necessary.

This plan of treatment seems to me to be specially suitable to old-standing cases where there is only a little thin and very foul-smelling discharge, probably associated with some diseased bone. The following case may be taken as an example:—K. M., a girl, aged nine, has had a discharge off and on for five years; smell from ear very offensive. The meatus contained a little half-dry pus. There was a very large perforation, and some granulations on the posterior wall of the middle ear, which I suspected to be connected with diseased bone. The Eustachian tube was obstructed by adenoids, so that the ear could not drain by it. Various antiseptic lotions had been used persistently and with care, but only with temporary benefit. I ordered papain drops in the manner I have indicated, and continued them for about three weeks, when for the first time for years the ear was found free from smell and discharge, and continued so for some months.

I have also used papain in several cases where there was no perforation, but where a firm plug of wax and epithelium had caked together, and could not be dislodged by syringing. The papain solution has invariably greatly facilitated the subsequent removal.

It seems likely that papain might prove of service in the removal of some of the foreign bodies occasionally met with in the ear, and also in treating otomycosis, but I have not yet had an opportunity of testing this.

In all my cases I have used Finkler's papain as supplied to me by Messrs. J. Robertson & Co. of Edinburgh. There is another preparation in the market known as Christy's, but of this I have no experience. According to Herschell it has somewhat different properties to Finkler's. It should be noted that the solution does not keep well, and therefore it requires to be freshly prepared every few days. Messrs. Burroughs, Wellcome & Co. make 2-grain papain tabloids, which I thought might be useful to make the fresh solution whenever required. I have, however, not tried them yet, as I find the solution made from them is very thick and muddy.

At first I used the papain in simple solution either in water or camphor water, but afterwards I inclined to think that it acted better with the addition of some soda, so I have lately been adding five grains of the bicarbonate of soda to the half ounce of papain solution.

It seems to me possible that papain might be of some service in general surgery to shorten the period of treatment in cases of caries of bone, or to render aseptic long narrow sinuses which contain debris, &c., in which germs hide from antiseptic applications. However, that is merely a suggestion, and one which falls outside my province.—*Edinburgh Medical Journal*, Jan. 1890, p. 621.

97.—A METHOD OF TREATING PERFORATIVE OTORRHOEA BY LOCAL MEDICATION.

By A. MARMADUKE SHEILD, M.B., F.R.C.S.E., Assistant Surgeon (in charge of Aural Dept.), Charing Cross Hospital, London.

All practical surgeons know how incomplete is the application by patients of the local remedies prescribed for them in cases of otorrhœa. Proper cleansing of the parts, so essential in bad cases of this kind, can only be thoroughly done by a skilful practitioner. Few patients believe this, few can afford the requisite time and expense, fewer still can be brought to understand that the malady is of sufficient urgency and importance to necessitate constant professional care. Any one who studies the treatment of these affections in the various text-books, English and Continental, will be surprised at the variety of applications employed, and the strength, not to say severity, of some of them. While a large number of cases can be satisfactorily treated on the simplest principles, we meet with others, especially in hospital practice, where the opposite condition obtains. I refer to instances of very profuse discharge and excessive fœtor, with granulations, and, possibly, bone disease. When such cases can only be seen at infrequent intervals it is exceedingly difficult to deal with them satisfactorily. The "blowing" of antiseptic powders into the ear is often advised. Should the prescriber investigate the case after this is done by the friends of the patient, he will usually find the major part of his remedies deposited anywhere but within the auditory canal.

The plan I call attention to is based upon a method of application of local remedies often adopted in other parts of the body. I allude to the employment of suppositories. In the present instance "pellets" would be a more satisfactory term. These have been manufactured for me by Messrs. Corbyn and Stacey of Bond Street, London, who possess the formulæ. I have tried various sizes, but that of a swan-shot seems about the most generally convenient. These small round balls can be made of any size specified, and various drugs can be incorporated with the oil of theobroma which forms the basis, so that they quickly melt within the canal at the temperature of the ear. Up to the present time iodoform, boric acid, and tannic acid have been thus employed. It is obvious that any drug, anodyne or otherwise, could be similarly used and applied; morphine, for instance, in cases where pain is a prominent symptom.

The method of application is as follows. At night time, the patient lying on the opposite side, one of the pellets is quickly taken up and dropped into the meatus. The tragus being drawn backwards and shaken, the little ball soon enters the canal. A plug of wool is then introduced, and the patient sleeps in the same position. The parts are thus for several hours impregnated with

the agents introduced. The basis is soft, and so readily melts in the fingers that the pellets must be kept in a cool place, and rapidly dropped into the ear. Should they stick on the walls of the canal the point of a fine dry brush can be used to push them onwards, and this instrument can be entrusted to unskilled hands.

I have employed these simple remedies in enough cases to convince me of their utility. Several students affected with otorrhœa have adopted the use of these pellets and have spoken favourably of them. It must not for one moment be imagined that this treatment is to be regarded in the light of a specific for otorrhœa. New methods or remedies are too often adopted blindly in all sorts of unsuitable cases, and the results being disappointing they sink into undeserved oblivion. Oily applications of all sorts are apt to turn rancid and cause clogging of epithelial *débris* and discharge. Accordingly the gentle and persevering use of the syringe is very essential, when oleaginous remedies are employed. In cases that can be seen and treated daily by the surgeon himself these remedies are not indicated; in other circumstances, and especially in out-patient practice, they will be found most useful adjuncts to cleanliness and asepticism. Their composition and size can obviously be varied according to the case or the fancy of the prescriber.—*Practitioner*, Nov. 1889, p. 363.

Obstetrics & Gynecology.

98.—ON THE SURGICAL ASPECT OF IMPACTED LABOUR.

By LAWSON TAIT, F.R.C.S., Professor of Gynæcology in Queen's College, and President of Mason College, Birmingham.

[In an Address delivered before the Southampton Medical Society, Mr. Tait, in speaking of cases in which the pelvic diameter is below three inches, observes:—]

When a practitioner is face to face with a case of impacted labour at the full time, in which he has had no previous knowledge of the possibility of complication, in which efforts at delivery by long forceps and podalic version are evidently unlikely to prove effectual, or actually have proved ineffectual on trial, What is to be done?

The routine treatment advised by authorities is that of evisceration. I propose to offer the alternative, which I think has greater and stronger arguments in its favour.

Passing on to discuss the operations at present in vogue, I have to enumerate evisceration, generally beginning with perforation of the head or one of the large cavities of the body, and removing the child piecemeal. As I have seen this operation performed, and had in one or two instances in my early life to perform it myself, I cannot imagine anything more repulsive and horrible. It is open to a great many objections, as in the first place it involves the investment of a considerable amount of money in an extensive and costly armamentarium, which usually lies rusting in a corner year after year, until the rare occasion presents itself for its use. Such an armamentarium must necessarily be possessed by comparatively few men, and there would be always a tendency, as I have already illustrated, for timid men to resort to the destructive operation under less severe conditions than altogether justified it. The operation is an extremely complicated and difficult one, occupying in the majority of instances a very long period of time for its accomplishment, necessitating, in those instances where it is most required, great bruising and injury to the maternal passages; it involves of necessity the death of the child, and, finally, it leaves the mother, if she recovers, exactly where she was, to undergo a similar risk again.

As an alternative to such an operation, I have to offer a modification of the Cæsarean section; but it must be borne in mind that there is great difficulty and no small danger by reason of the constant want of precision in modern nomenclature concerning operations. The operation as at present known by that term con-

sists in principle of the preparation of an artificial channel between the uterus of the living or dead mother and the outer world. The original meaning of the operation was restricted to the removal of a living child from a dead mother, and the conditions of the operation were stringently limited by the canons of the Catholic Church.

A large number of new operations have been suggested as modifications of the Cæsarean section to which the names of persons have become unfortunately attached, but in none of these, with one exception, is there any detail of a new kind of sufficient importance to be lifted into the position of a particular item of nomenclature.

The exception of which I desire to speak is that principle of amputation of the pregnant uterus introduced by Professor Porro, which in my experience and in my belief will revolutionise the art of obstetrics in those conditions in which the relations of mother and child are of the most serious kind.

In the old Cæsarean section, no matter whether applied to the living or the dead mother, the uterus was not removed. Professor Porro's proposal is to perform a Cæsarean section, and then to remove the uterus by a simple process of amputation, and this constitutes a most essential difference to all other proposals. The difference may best be expressed by figures, for it seems to me that in cases operated upon by the adoption of Professor Porro's principle, the mortality need not exceed 5 or 6 per cent., whilst we know that the Cæsarean section gives a mortality of no less than 90 or 95 per cent.

The reasons for the want of success attending the performance of Cæsarean section are not far to find. In the first place, the operation has to be performed in the great bulk of instances by men who have had no kind of special training, not only in abdominal surgery, but in surgery generally. Most of the operations fall to the lot of men in outlying districts, and this was undoubtedly a factor of great importance in the consideration of the mortality. The cases were not operated upon in their earlier stages, but only, as a rule, after a tremendous amount of ineffectual effort had been exercised to effect delivery in other ways. In other words, the operation was only practised as a *dernier ressort* and in *articulo mortis*. The maternal parts were extensively lacerated or contused, and the mother was in the worst possible condition for such a serious undertaking. No wonder the mortality was high. Then a third and important factor in the mortality was the retention of the uterus, occupied by a large wound, through which probably the hemorrhage was in a large number of cases fatal, and even when this objection was obviated an organ was left suffering from serious traumatism, the inflammation following which is one of the deadliest perils a woman has to undergo. You all know

very well that there is no region in which the inflammatory process is so uncontrollable as in the parturient uterus. So strongly have I been impressed with this that I am prepared to undertake, in the treatment of the so-called puerperal fever, removal of the suppurating uterus as probably the only treatment which we shall apply of a really satisfactory kind.

When we open the bodies of women who have died after confinement from inflammation of the uterus, we find a suppurating peritonitis, which is only a feature of the case. The real trouble is that the enormous venous sinuses of the uterus are filled with decomposing and purulent blood. This would therefore of necessity constitute a large element in the mortality of the old Cæsarean section. Removal of the uterus would obviate it. Finally, the removal of the uterus would entirely relieve the patient from the risks of again being placed in a similarly dangerous position. This question, of course, is an ethical one upon which considerable difference of opinion may be expressed, but I, for one, have no hesitation in arguing for the view that if on the one hand we have a means of relieving a patient for the time, and on the other hand a means of permanent cure, we are bound to accept the method of permanent cure instead of one of mere temporary relief. My thesis is therefore contained in this question: Whether, when you have before you a case of impacted labour arising from causes which you have been unable to ascertain beforehand and in which neither the forceps nor turning are available for relief, it will not be better to put all eviscerating operations on one side, and proceed to remove the foetus through the abdominal walls of the mother?

All the modern authorities on craniotomy are nearly agreed that this operation has a mortality of at least 20 per cent., and this would probably be very much emphasised if we could get hold of the return only of the cases in which the operation was really necessitated by a small pelvic diameter, and had to be carried out to the piecemeal removal of the child. Even the mortality of the induction of premature labour is said to approach nearly 15 per cent. for the mother, whilst for the child it is certain that not more than half a chance is given; but even these statistical statements are, I think, only one side of the question. In forceps application the mortality of the foetus is well known to be about 1 in 7 or 8, whilst in turning it is 1 in 3 or 4. In craniotomy, of course, the child dies practically to the extent of 100 per cent. On the other hand, in cases of amputation of the pregnant uterus, the mortality for the child is almost nothing, certainly not 5 per cent. as against premature labour, in which half the children are lost, and the question therefore narrows itself down to the diminution of the mortality for the mother.

The arguments for the proposal that I have to make are

that Porro's principle of amputating the pregnant uterus has reduced the maternal mortality of these operations so enormously that we may well hope to see it reach the point at which ovariectomy has arrived, so that not more than 3 or 4 per cent. of the women subjected to it may die; but, even allowing a somewhat higher average for men less practised than those like myself in abdominal surgery, we may concede 5 or 6 per cent., and I ask, therefore, whether it would not be a brilliant result to save some sixty or seventy more of the mothers in every hundred than we do at present and 95 per cent. of the children. Then there is the strong ethical question that for the women who survive a cure has been effected, and the absolute prevention of the recurrence of the terrible position in which they have been once placed is secured; and this risk of recurrence is not a vain one, as everyone must know who has had in his practice instances where craniotomy or even premature labour has been necessitated time after time in the same patient.

Far above all the demands for such an operation as this lies the demand for simplicity, and therefore I deprecate the introduction of any complicated detail into such an operation as this—indeed, I deprecate the introduction of any detail into any operation—which in the least degree tends to complicate its performance, or renders more cumbersome and less intelligible the instruments required for its performance. The less elaborate and complicated the instruments are, and the less tedious and difficult the manœuvres, the greater the chance of any surgical proceeding becoming popular as well as successful.

It was practically impossible for every practitioner to be provided with all the numerous instruments which are wanted to make up the paraphernalia of the scientific obstetrician, while he would inevitably have at hand the few simple instruments required to perform the operation for which I am now arguing that it ought to be substituted for all the destructive and mutilating operations on the foetus in impacted labour. In enumerating what is required, let me first of all say that they are what you may carry in your pocket-case: two or three pairs of catch forceps for arresting bleeding points, a small sharp scalpel, two or three bayonet pointed suture-needles, some silk, a piece of india-rubber drainage-tube, and two needles of steel wire, and none better than the ordinary stocking knitting needle can be found. If you wish to be very scientific, you may add a *serre-nœud* such as was originally invented by Koeberlé, or as modified by Bantock or myself, but it is not in the least degree necessary.

The first step in the operation is the abdominal incision, four inches in length, involving first the skin and then the muscles down to the sheath of the rectus, all of which ought to be divided by a sharp knife at one blow; then the tendon of the one or other

of the recti is opened, the muscular tendons fall aside, the posterior layer of the tendon is nipped up by two pairs of forceps and divided between them. The extraperitoneal fat is treated similarly, then the peritoneum raised again by two pairs of forceps, a slight notch being made between them; and the moment this is effected air enters, and all behind falls away. No director is required, nothing but an observant pair of eyes, lightly-applied forceps, and a delicately-applied, sharp-cutting knife. The finger is then introduced into the peritoneal cavity, and the relations of the uterus and bladder exactly ascertained. The peritoneum is then opened to the full extent of the four-inch incision, and the cut edges of the peritoneum are seized on each side by a pair of forceps and are pulled severally to the respective sides. No better retractors can be employed.

The piece of india-rubber drainage tube about eighteen inches or two feet long is now held as a loop between the fore and middle finger of the left hand, and is by that means slipped up over the uterus and pulled down over the cervix, passing the fingers behind the cervix to see that coils of intestine are not included in it. One hitch is then made on the tubing when it has been got as far down as possible, and it is pulled as tight as is consistent with safety. The second hitch may be made in it, but what is far better, an assistant keeps the tube on the strain, so that the one hitch will be quite enough to effect the most efficient clamping.

A small hole is then made in the uterus, just large enough to admit the finger; if it is possible, the position of the placenta may then be ascertained; if not, the right forefinger follows its colleague, and between the two, by gentle rending, an aperture is made in the uterus, and the leg of the child is seized. The foetus is then carefully delivered feet first, and this, despite all the authorities to the contrary, is by far the best proceeding; less blood is lost, and it requires but very gentle manipulation to relieve the head.

As soon as the foetus is removed, the placenta is sought for, and removed similarly; the uterus itself, being then completely contracted by this time, is pulled out of the wound, and the elastic ligature is tightened once more, and finally arranged round the cervix, and the second hitch is applied. The main details of the operation are now completed; all that is required is to pass the needles through the flattened tube and through the uterus, and out at the other side, forming a St. Anthony cross or two parallel bars to support the weight of the uterus and the stump, and to keep it outside the wound. A complete toilet of the peritoneum is then made, not forgetting the anterior vesical *cul-de-sac*; stitches are passed in the ordinary way to close the wound accurately round the uterine stump.

The uterus is now removed close down to the needles and

strangulating rubber tube, so as to leave a little tissue above. It does not do to run any risk of the ligature slipping off, though this is hardly possible after the needles have been placed carefully through the structure of the tube. A little perchloride of iron is then rubbed gently over the surface of the stump; it is dressed with dry lint and some dry cotton gauze, an ordinary obstetric wrapper is put on, and the operation is at an end.

The operation really takes very much less time to perform than it takes to describe, and, as I have said before, because the details must always be the same it is an operation in which there never can arise any unforeseen or unexpected difficulty.

Only one other suggestion I am disposed to lay before my obstetric brethren for the further extension of this operation, that is, the case of placenta prævia, a condition which is one of the most fatal that can affect a parturient woman. My belief is that the fatality—and it is entirely confirmed by my experience—is of a twofold nature. First of all by the terrific hemorrhage involved by laceration of the enlarged sinuses in the lower uterine zone at the time of labour, no matter how slowly that may be effected; and secondly by the suppuration of the same cavities and the consequent systemic infection. The foreign schools here again differ materially in their directions as to how the displacement is to be dealt with. Those who regard the safety of the child as of paramount importance, direct that the child should be delivered immediately upon complete separation of the placenta. Those who have less regard for the living child direct that the placenta should be removed and the delivery left to nature, so as to run as little risk for the mother as possible, and, from this point of view, there can be but little doubt that the second scheme of treatment is by far safer for the mother, but it involves almost certain death for the child, and even under this scheme the maternal mortality is terribly high. If I had to deal with a case of complete placenta prævia from the beginning of labour, and could carry out what I believe would be the ideal of surgical treatment of this condition, I should amputate the pregnant uterus. I should thereby save the child with certainty. I should relieve the mother with perfect safety from death by hemorrhage; and, by removing all the tissues in which large suppurating venous sinuses were present, I believe I should relieve her with almost equal certainty from the secondary risks. There is, of course, here not an argument which obtains in the case of deformed pelvis that you relieve the patient from immediate risk, but the terrible nature of the disaster, and the fearful mortality involved in it, is, I think, justification enough for the careful consideration of any suggestion likely to reduce the mortality.—*British Medical Journal*, March 22, 1890, p. 657.

99.—A SUCCESSFUL CASE OF LAPAROTOMY AND SUPRA-VAGINAL AMPUTATION OF UTERUS FOR RUPTURE.

By HENRY C. COE, M.D., M.R.C.S., Prof. of Gynæcology, New York Polyclinic; Surgeon to N. Y. Maternity Hospital.

On September 8th, at 1 p.m., I was called by Dr. R. H. Hayes to perform Cæsarean section in a desperate case of labour. Not knowing what I would find, I hastily collected a few instruments, and with my associate, Dr. G. A. Klettsch, accompanied the doctor to a tenement-house a mile distant, in the fourth storey of which we found the patient attended by Dr. W. A. Hayes, who had been called to see her in consultation. She was a healthy Irishwoman, twenty-three years of age, with a rapid, feeble pulse, evidently in a state of collapse. The gentlemen in attendance feared that rupture of the uterus had taken place two hours before. Examination of the abdomen revealed two tumours, a larger one filling the right side of the abdomen and extending as high as the ensiform cartilage, and a smaller occupying the left iliac fossa, both being firm and unyielding. It was evident that the former was the body of the uterus, tilted over to the right and in a state of tetanic contraction, and the latter the head of the child. Palpation of the abdomen above the latter gave an ominous gurgling sound, suggestive of free fluid in the peritoneal cavity. I learned that prolonged attempts had been made to extract the child by forceps and version. Introducing my hand into the vagina, I discovered that the anterior lip of the cervix was deeply lacerated antero-posteriorly, while another laceration extended through the vaginal junction on the left side. Passing my finger through the rent, I entered the abdominal cavity.

The child, which was of unusually large size (fifteen pounds), and was dead, presented in the left dorso-anterior position, with the right hand and foot prolapsed, and was firmly impacted; the head seemed to be partly outside of the uterus. Believing that a further attempt at version would only extend the tear, I at once decided that laparotomy offered the only prospect of saving the woman, and proposed this to the husband, who consented. The patient's condition was desperate, and the surroundings were such that any approach to antisepsis seemed to be impossible, but I felt that she ought to have the chance. She had lost a large amount of blood and her pulse was so feeble that hypodermics of brandy and ether were given. Fifteen minutes after my arrival, assisted by the gentlemen mentioned, and by Dr. Huntington, who had been sent for, I made a free incision, eight inches in length, through a very fat abdominal wall and opened the peritoneal cavity, which contained a quantity of fluid blood and clots. A rent was found extending upward from the cervix through the left broad ligament and the lower uterine segment. The head of the child lay in the

left iliac fossa outside of the uterus, being grasped by the edges of the tear. I saw at once that this was not a case for suture of the uterus, as arterial hemorrhage was going on from the vessels of the lacerated broad ligament, and the condition of the patient was such that no time was to be lost. The uterus was turned out of the cavity, the cervix constricted by a piece of rubber tubing cut from a fountain-syringe (I had forgotten my *écraseur* in my haste), and the child was extracted through the rent. Without waiting to remove the placenta, I secured the tubing with a pair of artery-forceps, excised the uterus with the ovaries and tubes, and proceeded to tie the bleeding vessels. This part of the operation was completed in twelve minutes. The utero-sacral ligament on the right side was also badly lacerated. The vessels having been secured, and the torn peritoneum sewn with a continuous catgut suture, the peritoneal cavity was thoroughly irrigated with hot water, and the stump was trimmed down and secured in the wound with knitting-needles. No drainage tube was used.

The bladder was carefully inspected, and was apparently uninjured. The cervix had been so badly torn that I expected it to slough out, as subsequently happened. The wound was hastily closed and the patient was placed in bed in fair condition in less than an hour after the operation, the delay having been due to the time spent in suturing the torn peritoneum. She rallied well, but had a pulse of 140 to 150, and no hopes were entertained of her recovery. From the outset she was free from nausea, and was able to take stimulants. On the second day her temperature rose to 102°-103° F., and there was general abdominal tenderness and distention, but, by maintaining free catharsis and using the ice bag, peritonitis was aborted. The urine was drawn during the first four or five days, after which it was usually passed spontaneously. The stump quickly necrosed; on the fourth day I replaced the tubing by a Koeberlé's *serre-nœud*, and removed the entire mass at the end of a week, packing the cavity with iodoform gauze. The patient's condition at this time was not entirely satisfactory. She took nourishment and stimulants freely, but her pulse remained at 120 and her temperature rose every evening to 101°-102° F. At one time an exhausting diarrhoea threatened her life. She complained of no pain, but I feared suppuration of the hæmatocele which had formed in the left broad ligament. As there was considerable discharge from the vagina, injections of creolin (1 to 400) were given after the first few days, with iodoform suppositories.

Early in the second week the urine began to escape per vaginam, although the patient could retain it to some extent. A careful examination with the finger and speculum showed that a cervico-vesico-vaginal fistula had been established, and that there was considerable sloughing of the upper portion of the vagina. All

the necrosed tissue at the bottom of the abdominal wound was picked away, until nothing remained of the cervix but the portio vaginalis; the wound granulated nicely, but there was a free communication with the vagina through which urine and the douché-water sometimes welled up. After the second week the patient's temperature became normal, with an occasional evening elevation to 100°-101° F., and she complained of nothing but the constant dribbling of urine. Her subsequent history was uneventful. She was allowed to get up at the end of the fourth week, at which time the wound still communicated with the vagina, and not quite so much urine dribbled away as at first. At the end of the fifth week the abdominal wound had entirely closed.—*Medical Record*, Nov. 2, 1889, p. 478.

100.—ON THE DIAGNOSIS AND TREATMENT OF EXTRA-UTERINE GESTATION.

By W. DUNCAN, M.D., Obstetric Physician Middlesex Hospital.

[Dr. Duncan gives the narratives of three cases:—(1) Tubal gestation in the left side; rupture between the layers of the broad ligament; abdominal section; death. (2) Right tubal gestation; rupture into peritoneal cavity; abdominal section; recovery. (3) Extra-uterine gestation; laparotomy; fœcal fistula; recovery.]

The diagnosis of extra-uterine pregnancy is often replete with difficulty, as the symptoms may either be indefinite or even altogether absent. Most often you will get a history of a previous pelvic inflammation, perhaps dating from the last confinement; then the woman will tell you that she missed one, or even two periods, and that this was followed soon after by pelvic pains and an irregular discharge of blood. The pelvic pains are due to the contractions of the uterus and the affected tube; they may be so severe as to cause actual collapse, without being necessarily accompanied by rupture. The uterine contractions tend to partially or completely detach the decidua, which lines the uterine cavity in these cases. As a result, there is usually an irregular hemorrhagic discharge, containing sometimes pieces of the decidua; these pieces must, by their much greater thickness, be differentiated from shreds of the normal mucous membrane and from the casts met with in cases of membranous dysmenorrhœa. Both the uterine contractions and the loss of blood may, however, be entirely absent. Whenever you get a history such as the above, accompanied perhaps by morning sickness and pains in the breasts, you should at once insist on the necessity for making a thorough examination of the pelvic organs; for, after all, it is only by the physical signs that a positive diagnosis can be made.

Let me here urge upon you the absolute importance, in order to avoid serious mistakes, of following the method of examination

which you see me invariably adopt both in the ward and the out-patient room—namely, to investigate the condition of the abdomen before proceeding to make a vaginal examination. I could relate many instances where the neglect of this precaution led to a failure of diagnosis on the medical man's part and to a grave result for the patient. In the first case I have described, had the abdomen been examined, a diagnosis of retroverted gravid uterus, with the repeated and vigorous attempts at reduction which followed the diagnosis, would not have been made, and in all probability the patient would now be living.

In cases of tubal pregnancy—if you are fortunate enough to be consulted prior to rupture—you will detect, by the conjoined manipulation, a rounded, somewhat elastic and tender, mobile swelling, varying in size from a hen's egg to a billiard ball, and situated to one or other side of, or perhaps rather posterior to, an enlarged uterus, the cervix of which is probably swollen and softened and the os uteri patulous. Where rupture has recently taken place and blood been effused into the pelvic cavity, you will most likely detect nothing, as blood thrown out there is usually unrecognisable until after coagulation has set in one or two days later. When the rupture occurs between the layers of the broad ligament you will find a tumour of varying size occupying one side of the pelvis, or perhaps filling up, likewise, the pouch of Douglas, pushing the uterus forwards and upwards, so that the os uteri may be only just within reach, and the vaginal signs may closely simulate those met with in retroversion of the gravid uterus, fibroids, or pelvic cellulitis. At the present time we have in Prudhoe ward a case of hæmatoma of the left broad ligament, in which the history points to a ruptured tubal gestation; the extravasation is being gradually absorbed.

Within the last few months I have seen in consultation several times in the country a young lady who, when five weeks from her last period, was suddenly seized with severe pelvic pain and faintness, which, however, soon passed off; next day, whilst out driving, she had a similar but aggravated attack. When I saw her a few days later, there was a mass in the region of the left broad ligament the size of a small cocoanut; this has increased so much that a month ago it not only occupied Douglas's pouch, but extended above the pelvic brim on the left side; this is doubtless a hæmatoma of the broad ligament, probably from a ruptured tube, and the increase in size may be due to the continued growth, as sometimes happens, of the placenta after the death of the foetus. As, however, there has been no further increase for the last few weeks, and as the patient's general condition is very good, the indication is not to hastily interfere.

The diagnosis is by no means easy when gestation has gone on between the layers of the broad ligament or in the peritoneal

cavity itself. As a rule, you will be able (especially after administering an anæsthetic) to find the uterus displaced upwards and a good deal enlarged, so much so indeed that it might be thought an early *intra-uterine* gestation was also present. The foetal heart sounds may be heard in an unusual situation, and the various parts of the foetus may be felt with an exaggerated distinctness. Sometimes, as in Dr. Edis's case, a well-marked souffle, exactly resembling the uterine souffle, can be heard. In a case which came to my out-patients' department some years ago, the foetal head was in Douglas's pouch, and the various sutures could be distinguished with the greatest ease through the thin vaginal roof.

My remaining remarks must be devoted to treatment. Until comparatively recent years, the method of treating early tubal gestation had been the endeavour to bring about the death of the foetus either by drawing off the liquor amnii, by injecting drugs, such as morphia, into the cyst, or by means of electricity; indeed, even at the present day most, if not all, of the leading text-books on Midwifery recommend the adoption of one or other of these measures; but I trust, gentlemen, that none of you will ever sanction such an uncertain and dangerous mode of treatment, for you must remember that danger to the patient does not end with the death of the foetus.

If, then, from the symptoms and physical signs, you diagnose tubal pregnancy *before rupture*, urge most strongly that the abdomen be opened without delay, for the woman's life hangs on a thread which may snap at any moment; and even if it should prove on examining the tube after removal that it is distended simply with either pus, serum, or blood, still the right course will have been adopted, and the risk from such an operation, carefully done, is nowadays comparatively slight. In my second case I can take very little credit to myself; for although on first seeing the patient I diagnosed tubal pregnancy, I did not follow the advice I have just given you, but watched the case for a few days, so that when I performed abdominal section the tube had actually ruptured. Had this woman died, her death would have been an unceasing reproach to me, and I certainly then learnt a never-to-be-forgotten lesson. When a woman becomes profoundly collapsed endeavours should be made to rally her by the injection of ether hypodermically; but even here probably the best chance of saving her life is for the abdomen to be boldly opened; and, if the case prove one of ruptured tubal gestation, the blood having been quickly turned out, the bleeding vessels can be secured. Never forget that rapid and great collapse may depend upon the rupture of some viscus or the perforation of an ulcer; but laparotomy would, or ought to, reveal the lesion, and perhaps enable the patient's life to be saved. I know of a case in which a physician, having diagnosed a perforating ulcer of the stomach, called in a surgeon and requested him to

operate on it. When the abdomen was opened the ulcer was not detected; but, for some reason or other, the uterine appendages were removed. Post-mortem examination revealed a recent perforation on the *anterior* surface of the stomach.

When a tubal gestation has ruptured and the blood has been effused between the layers of the broad ligament, the case does not assume so grave an aspect as in the last variety, nor does it as a rule call for immediate interference, for in many instances the foetus dies, and it, with the blood, becomes gradually absorbed. If, however, the foetus continues to grow, an operation will be necessary, and then the question arises, Should it be performed directly the diagnosis is arrived at, irrespective of the stage to which the gestation has advanced, or should it be postponed until after the viability of the foetus? My answer to this is that in cases where the foetus has nearly approached a viable age, its claims must be allowed; and whilst carefully watching the mother, we ought to delay operating until we can do so with the probability of saving both mother and child. But on the other hand, where the gestation has only reached the fourth or fifth month, it seems to me unwise and unjustifiable to allow the patient to run the risks incidental to her condition for a period of several months. Now, in these cases, with the distension of the broad ligament, the parietal peritoneum gets stripped off the pelvic and lateral abdominal walls, so that Mr. Lawson Tait (in his lectures on Ectopic Pregnancy, which I recommend you to read) advises that the incision be made, not through the linea alba, as is customary, but well out to the side on which the pregnancy is supposed to be; and in this way the gestation sac can often be reached without opening the general peritoneal cavity. After removal of the foetus, the placenta must on no account be interfered with, as the great danger is profuse and uncontrollable hemorrhage, due to the early separation of the placenta, before the vessels supplying it have become firmly thrombosed. Another danger is the occurrence of septicæmia from the sloughing away of the placenta. To avert this, after the edges of the sac have been stitched to the edges of the abdominal incision, the custom has been to use frequent antiseptic irrigations and to dress the wound antiseptically. But Mr. Tait recommends a plan which I shall certainly adopt when the chance occurs—viz., after cutting the umbilical cord as close to the placenta as possible, and emptying the cyst carefully of its fluid contents, he hermetically shuts in the placenta in the cyst by the accurate coaptation of the edges of the incision in its wall. As there is much less risk of hemorrhage from the placenta in those cases where the foetus has been dead for days or weeks, some authorities recommend that abdominal gestations should be allowed to go on to, or even beyond, full term, and not be interfered with until after the death of the

foetus. I advise you not to adopt this course, because it sacrifices the life of the child needlessly, and also necessitates the mother being exposed to danger for a prolonged period. Lastly, the incision through the abdominal wall is almost always preferable to that through the vagina, even in those cases where portions of the foetus can be felt in the pouch of Douglas.—*Lancet*, March 1, 1890, p. 452.

101.—ON CORPOREAL ENDOMETRITIS: ITS FREQUENCY, DIAGNOSIS, AND TREATMENT.

By G. ERNEST HERMAN, M.B., F.R.C.S., Obstetric Physician to the London Hospital.

[Dr. Herman's observations here reproduced refer only to the uncomplicated form of Corporeal Endometritis occurring independently of pregnancy, and during menstrual life.]

1. *Fungous Endometritis*.—This is not a common disease, but its characters are well marked, and it has been much studied. It occurs in two forms: these two forms were, so far as I know, first clinically described by Routh, although the description subsequently given by Olshausen, and usually quoted, is more complete. These two forms are the hyperplastic and the polypoid. In the first there is general thickening, softening, and loosening of the endometrium; in the second there are distinct polypoid growths. The uterus is bimanually found slightly enlarged, and when the cervix is dilated, the cavity of the body is found slightly expanded. The symptoms are hemorrhage, with pink or watery discharge in the intervals of hemorrhage. The treatment which is usually successful is to scrape away the diseased mucous membrane with the curette, and then apply a caustic. Some practitioners use the curette, and not the caustic, some the caustic and not the curette. Cure often follows (I think usually) either method, but we have no exact data that I know of on which to base a preference for either of these methods of treatment. My own impression is that to do both is the most sure; while in the polypoid form the curette is the more essential. If caustic be used, it matters very little what the caustic is; whether nitric acid, perchloride or sulphate of iron, the actual cautery, or strong carbolic acid. Some use a sharp spoon, others a blunt curette; my own preference is strong for a blunt instrument. There is now abundant evidence that after this treatment complete recovery may follow, and that subsequent fertility is not interfered with.

Polypoid growths are more commonly, though not exclusively, met with in those cases in which the symptoms date from delivery or abortion. I have met with them in the unmarried, without any history pointing to previous pregnancy, but such cases are the exception. Treatment is more uniformly successful in the cases which date from a pregnancy, more uniformly successful in

the cases in which there are localised outgrowths than in those in which there are not.

We want records of experience as to the circumstances of origin of the hyperplastic form. I have met with it in a virgin of 25, and I have met with it in older women who presented histories of menstrual irregularities. The frequency of relapse points to some cause other than in the uterus. I have seen cases in which, after treatment, symptoms have recurred, but further treatment has been declined, but the patient has ultimately got well. From this I infer that spontaneous cure is possible. We want information also as to the relation of these cases of endometritis to cancer. Everyone knows that there are cases in which, after the uterus has been scraped and hemorrhage arrested, the disease returns, and the patient ultimately dies of indubitably malignant disease. In most cases of this kind, the explanation that naturally suggests itself is that the original diagnosis was mistaken, and that had the bits removed been examined by a competent histologist, the cancerous nature of the disease would have been recognised from the first. But opinions have been expressed by very competent judges as to the occasional development of malignant disease out of changes which at first had no such character. Instances of this in other parts of the body will occur to everyone. It is rational to expect that it might happen in the body of the uterus, but I know of no satisfactory evidence on the point; and a record of cases illustrating this would be most instructive. This form has no tendency to spread to the Fallopian tube.

The next form of corporeal endometritis to which I would ask a little attention is one about which we know scarcely anything beyond that it exists, and is very important. We know of its existence by inference only, but nothing about its morbid anatomy or its symptoms. I refer to gonorrhœal endometritis. We know that gonorrhœal inflammation starts in the vagina, then affects the cervix, and, later on, the Fallopian tubes; and it is an irresistible inference that the affection of the tubes must have arisen by continuity, and that, therefore, corporeal endometritis must have been present at some stage in the history of the case; that it probably follows the affection of the cervix and precedes that of the tubes, and that, if we could ascertain its presence, we might foretell the imminence of tubal inflammation. Had we this knowledge, it might lead to the discovery and adoption of measures for preventing extension to the tubes; but at present we know nothing, so far as I am aware, either of the morbid anatomy or the symptoms of this form of endometritis. I believe it does not commonly cause hemorrhage. Such discharge as the body of the uterus, when infected by gonorrhœa, pours out, comes to us mixed with secretions from the cervix and vagina, and therefore cannot be readily, if at all, identified. On this point we urgently want more knowledge,

and those who have charge of hospitals in which many cases of gonorrhœa in women are admitted have it in their power to give us more help in this direction than can those who do not see the cases till the tubal disease, by its persistence, drives the patient to seek the advice of a specialist.

There is a form of corporeal endometritis which is more often seen on the post-mortem table than recognised clinically, but which, there is reason to suppose, is more important than is generally thought. I allude to the endometritis which sometimes—I know of no statistics to show how often—occurs in the course of the specific fevers, typhoid, typhus, measles, &c. In the acute stage the symptoms caused by this endometritis are so slight in comparison with those of the grave diseases they complicate that they seldom incur the danger of undue attention. But post-mortem research leaves no doubt of the existence of this form of endometritis, and it has long been known that these acute diseases are occasionally followed by amenorrhœa, menorrhagia, dysmenorrhœa, sterility. More recently abortion and placenta prævia have been traced back to an attack of acute febrile disease. Our knowledge of this connection is at present only conjectural; that endometritis resulting from febrile disease may prevent the ovum from getting embedded in the proper place *in utero* is a hypothesis at present, invoked to explain a few cases, which may be merely instances of coincidence. But it is an eminently reasonable hypothesis—far more so, I think, than the more generally accepted theory of the mechanical effect of enlargement of the uterine cavity.

I have read descriptions of acute endometritis as a disease attended with high fever and much pain. There can be no doubt that peritonitis following delivery or operations on the uterus sometimes commences as endometritis, and quickly extends to the tubes and peritoneum. But in these cases the endometritis is merely an initial stage, which is quickly passed over, and by the time that high fever and much pain have developed I should be of opinion that this stage has been passed, that something more than endometritis is present.

I have hitherto spoken of cases in which there can be no question of the existence of disease of the lining membrane of the uterus. I come now to the cases which most perplex the student and commencing practitioner; those in which the diagnosis rests on inference only, and is not verified by inspection or examination of the part supposed to be diseased or the secretion which comes from it.

There are cases in which, after exposure to causes of such a kind as we know to be capable, when acting upon other parts, of setting up congestion and inflammation in them, the uterine functions become disordered; the patient suffers from slight pain, from hemorrhage, and from discharge in the intervals of hemor-

rhage. Such symptoms follow, for instance, irritation of the uterus with an intrauterine pessary, excessive functional activity such as sometimes follows marriage, excessive fatigue, &c. Mere hemorrhage is not evidence of endometritis, for metrostaxis may occur, like epistaxis, without discoverable disease of the mucous membrane. But when we have recurrent hemorrhage, persistent pain, and persistent leucorrhœa, I think the inference is a justifiable one, that there is a persistent change which is causing the symptoms. When we take into consideration the mode in which the symptoms have been produced, and their course, the inference that the change is an inflammatory one is in harmony with the facts. The one great feature which all inflammatory changes have in common is that when the cause is removed they tend to recovery. And in these cases, when the patient is kept at rest, the irritating instrument removed, or the mode of life under which the disease has developed altered, the symptoms diminish and disappear. The endometritis is here part of a general congestion of the pelvic organs.

I have indicated the treatment in speaking of the different forms. In fungous endometritis I think it will be generally admitted that local treatment is the only thing that will do good. We know nothing about the treatment of gonorrhœal endometritis, because we have not yet succeeded in diagnosing it. In endometritis from slight causes the main point is to alter the conditions which have set up the disease, and to use remedies which diminish congestion of the pelvic organs, namely, recumbency, laxatives, the local use of glycerine, either in the shape of tampons or pessaries, and the hot douche. If this treatment be used early, the symptoms quickly disappear; and if the patient avoid the cause which has led to it, the symptoms will not return. In these slight and recent cases, active intrauterine treatment is injurious rather than beneficial. If the case be more chronic, and simple treatment fail, then the use of the curette or a strong application to the endometrium seems to me much preferable to the use of so-called alteratives, either in the form of intrauterine irrigation, which I confess I have not had the courage to try, or ointments, which I have tried, and been disappointed with. The introduction of remedies on cotton wool wrapped round a probe, which is a most scientific and effectual method of treating cervical endometritis, seems to me, if I may be pardoned for saying so, illusory as applied to corporeal endometritis, because in the passage through the cervical canal the medicament gets wiped off, and the probe coated instead with a layer of cervical mucus.

I have said nothing about membranous dysmenorrhœa, for that is a disease having characters of its own; and it does not seem to me yet established that this disease should be regarded as a form of endometritis.—*British Medical Journal*, Feb. 1, 1890, p. 221.

102.—ON DOUBLE-CURRENT TUBES FOR VAGINAL AND INTRA-UTERINE INJECTIONS.

By GRAILY HEWITT, M.D., F.R.C.P., Emeritus Professor of Obstetric Medicine, University College, London.

1. *Double-current Tube for Vaginal Injections in Childbed.*—In the interests of efficient antisepsis in midwifery practice the present method of administering vaginal injections in childbed seems susceptible of improvement. In hospital midwifery practice antiseptic vaginal irrigations used under the most favourable circumstances, and with care and skill, have proved of the greatest service. It by no means follows, however, that the regular and indiscriminate employment of vaginal injections in childbed is to be recommended for ordinary midwifery practice :where the services of a skilled nurse being not always available, it is therefore more difficult to supervise their proper employment. From facts which are recorded it appears that vaginal injections now and then produce the very effect they are intended to prevent. It seems probable, however, that a part at least of the liability to mischief from the use of vaginal injections in childbed is connected with inherent defects in the construction of the apparatus employed; and, if so, it is desirable that these defects should be remedied.

The vaginal tube which is generally used is of gum elastic, and is about the size of the finger. The fluid escapes from the tube through perforations situated close to the extremity. This vaginal tube appears to be most objectionable for a variety of reasons. The tube is difficult to clean, it is liable to become clogged with detritus possessing probably septic properties, and this is especially liable to occur at the perforations for escape of fluid. The prevention of such partial clogging of the tube requires incessant vigilance on the part of the nurse. Moreover, it is impossible to say from simple inspection of the tube that it has been properly cleansed. Another great objection is the size of the tube, the smallness of which allows of its entering the os uteri and so passing into the cervix without any great difficulty if the os happens to be in a favourable position and direction. When such entry happens, the tube may be made the means of carrying septic material from the vagina into the cervix, and the injected stream of water will either enter the uterine cervix, or may pass altogether into the uterus. In cases where the tube has entered the uterine canal and happens to fit it tolerably well, the tube will of course act as a cork, and fluid injected will pass more certainly into the uterus, and possibly also into the peritoneal cavity through one or both Fallopian tubes. An instance of this latter occurrence was recently described by Dr. Charles Scott Watson in a paper in *The Lancet* of Dec. 21st, 1889, entitled "A Case in which Peritonitis was caused

by Vaginal Syringing after Two Successive Confinements." Probably a considerable number of such cases could be collected.

To fulfil the necessary requirements, the vaginal tube through which fluid is injected should be so much larger than the one at present in use that there will be no liability of its being pushed into the cervix uteri; it should deliver the fluid at the top of the vagina. There should be a provision for a return current to promote ready escape of the fluid from the vagina, and the material of the tube should be such that it can be easily cleansed—the only material which appears to fulfil the requirements being glass, which allows of ready inspection as to the safe condition of the tube for injection purposes.

Some months ago I exhibited at the Obstetrical Society a vaginal injection tube (see Fig. 1) intended to meet the necessities of the case. It is a glass tube $4\frac{3}{4}$ in. long, with a diameter of $1\frac{1}{8}$ in. The tube is very deeply grooved with four grooves in the longitudinal direction, the grooves acting as channels for the easy escape of fluid from the vagina. It is therefore virtually a double current tube. The tube has rounded apertures placed in a circle close to the distal extremity. It can be readily affixed to the indiarubber pipe of an ordinary syringe or connected with a reservoir douche. Thus a copious irrigation of the vagina can be kept up as long as is thought desirable. The fluid used should not be less than a pint, and should be made properly antiseptic. To avoid entry of air the tube should be filled with fluid before being introduced into the vagina. One objection to which this vaginal tube may possibly be thought liable is the material, which, being of glass, renders it liable to break if carelessly handled or allowed to fall on the ground. It offers as a compensation greater guarantee for efficient antiseptics, and should be capable of being safely employed by an intelligent nurse.

2. *Double-Current Tube for Intra-uterine Injections.*—I need say nothing as to the exceeding value of intra-uterine injections in properly selected cases. In reference to the *technique* of the procedure, the necessity for providing for a return current in the employment of intra-uterine injections has been long recognised. I believe Budin first adopted the principle of using a deep groove for the return current; modifications of this principle have been since employed. I exhibited at the Obstetrical Society a short time since a glass tube adapted for this purpose, grooved deeply externally on four sides (see Fig. 2), and thus providing more efficiently and conveniently for a return current. The glass tube measures ten inches in length and seven-twelfths of an inch in diameter; the tube is deeply grooved at the uterine end for half or three-quarters of the whole length. It is very slightly curved at the uterine end. The tube is readily fastened to the

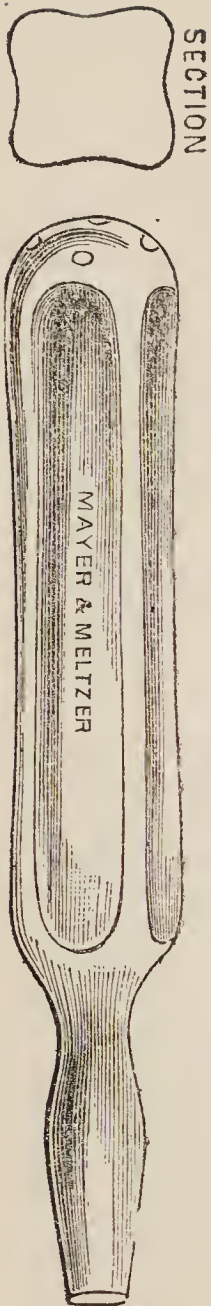


FIG. 1.

Double-current
Vaginal tube.
(Half the actual
length.)

rubber tube of a syringe or reservoir douche. The fluid injected escapes into the upper part of the uterus through apertures arranged near the extremity of the tube, and readily flows out of the uterus through the longitudinal grooves. Being provided with four grooves, there are virtually four tubes for escape of fluid from the uterus. It should be filled with fluid before introduction in order to prevent the entrance of air.

I have employed this instrument with the greatest success in four cases where antiseptic irrigation of the interior of the uterus was necessary, and I consider that being of glass it possesses very great advantages over tubes of opaque material. This tube is, I need hardly say, only intended to be employed by the medical attendant. It may be suggested that in cases where intra-injection is employed, the prior irrigation of the vagina by means of the vaginal tube would be desirable.—*Lancet*, March 8th, 1890, p. 533.



FIG. 2.

Double-current
Intrauterine tube.
(Half the actual
length.)

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LIQ. CAULOPHYLLIN ET PULSATILLA CO. (OPPENHEIMER'S, 1 & 3, Sun Street, London, E.C.)—"Of caulophyllin and pulsatilla much can be said of a favourable nature. *Caulophyllin*, the resinoid prepared from *caulophyllum thalictoides*, known as squaw root, pappoose root, and blue berry, has been recognised as a valuable therapeutic agent from very early times, and has been highly spoken of by many American physicians of note. There seems to be a general agreement amongst those who have studied its action that its effect is chiefly felt by those motor nerves which are connected sympathetically with the menstrual organs, and that this action is of a sedative character, allaying that irritable condition of the generative system which so often lies at the root of functional irregularities. As a remedy in these derangements, in 'irritable neurotics,' especially when they are marked by disturbance in the sacral plexus, it has undoubtedly acquired a sounder reputation than most of its competitors, and deserves a permanent place in the select circle of approved remedies. But its action, although often favourable when administered alone, is much more reliable when given in combination with *Pulsatilla*, which has long been known as a popular and effective remedy in uterine functional derangements. A few years ago it was well spoken of by Dr. Brunton and Dr. Gerard Smith as a sedative agent of much power in the treatment of inflammatory states of the testicle and spermatic cord, producing such rapid abatement of pain as to supersede even the necessity for morphine. As *pulsatilla* increases the beneficial action of *caulophyllin*, so the latter increases the action of the former, and it is therefore when they are both combined that we get the most perfect emmenagogue that our present state of knowledge has yet suggested."—*Lancet*, June 8, 1889.

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From "Retrospect of Practical Medicine and Surgery," July 1877.

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